The Relationship between Type of High School Attended and Student Behavior

By

Andrew Kenny Donlan

B.A. May 1990, Siena College
M. Phil. August 2000, The George Washington University

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Jeffrey Roger Henig
Professor of Political Science

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ABSTRACT OF DISSERTATION

Incidents of violence in recent years have intensified concern about student conduct in our nation's schools, and have heightened the desire, among educators and others, to find ways of ameliorating the problem. Social science can play a supportive role, by providing insight into the origins of deviance in schools. However, while previous literature provides a large body of research addressing academic achievement, relatively few studies have investigated student conduct. This study estimates the relationship between characteristics of students, peers, families, and schools, and eleven indicators of high school student conduct. The primary objective is to estimate the relationship between the type of high school attended (public, Catholic, and other private) and behavior. The study employs regression and logistic analyses, utilizing data from NELS:88.

Several findings are noteworthy. First, there is a general pattern of favorable Catholic school influences on behavior; however, this influence is not found for all types of conduct. Second, other (non-Catholic) private schools do not appear to influence student behavior favorably in comparison to public schools. Third, the influence of the student's family is strongly affirmed. Family traits identified as influential include not just socioeconomic status, but also family relationships, parental supervision, and

communication. Fourth, the results do not support the view that Catholic schools are fundamentally more strict, in terms of school-reported disciplinary policies, than are public schools. Finally, instructional difficulty level (whether instruction is rated as too difficult for the student) is among predictors with the greatest influence on conduct.

Further study is recommended regarding parent traits such as religiosity (self-identification as a religious person), parental beliefs and values, and the example parents set by their own conduct (social learning). Research in the elementary school years is also suggested, as is investigation of the role of religion in sectarian schools.

CONTENTS

Chapter Page

TABLES

Table Page

CHAPTER 1

INTRODUCTION

Incidents of violence in recent years have intensified concern about student conduct in our nation's schools, and have heightened the desire, among educators and others, to identify possible solutions. Social science can play a supportive role by providing insight into the origins of problem behavior. However, while previous literature provides a large body of research addressing academic achievement, relatively few studies have investigated student conduct.

Rationales for Interest in Student Behavior

Several considerations underscore the importance of investigating student behavior: first, the impact of student conduct on the experiences and relationships of individuals in schools; second, the influence of behavior on instruction and learning; and third, the incidence of disciplinary problems in schools.

School Order as Integral to School Life

Maintaining discipline in schools is often conceived as instrumental to attaining purely academic outcomes.[1] But school order is worth attaining as an ingredient integral

[1] The contemporary preeminent focus on cognitive development stands in contrast to the historical emphasis on values and behavior as the most basic mission of schooling (Katz 1980).

to positive school life (e.g., Bryk, Lee, and Holland 1993). Jencks et al. (1972) express this well:

> ... we think it wiser to evaluate schools in terms of their immediate effects on teachers and students... Some schools are dull, depressing, even terrifying places, while others are lively, comfortable, and reassuring. If we think of school life as an end in itself rather than a means to some other end, such differences are enormously important (256).

Danger in schools, or perceived danger, is demonstrated in the effort of students to avoid certain areas in schools. In 1995, 9% of students ages 12 through 19 reported avoiding one or more places at school for fear of their own safety (U.S. Department of Education, The condition of education, 1999, 44-45). The incidence of disciplinary problems in schools (as discussed in the next section), suggests that student fears are often well-founded.

Parents and teachers, too, display concern about behavior. In a survey that asked parents of public school students to indicate the biggest problems facing schools in their community, respondents identified issues relating to behavior (*lack of discipline*, *drug abuse*, and *fighting/violence/ gangs*) more frequently than educational quality (Elam and Rose 1995, 52-3). Sullivan (1989) indicates that school disorder is among the most commonly given reasons for students transferring schools, and that behavioral reasons are cited more often than are issues of academic quality. In a study conducted by Clark-Chiarelli (1994), teachers identified student absenteeism, alcohol use, tardiness, drug use, and verbal abuse as "the most serious problems confronting educators" (19). Furthermore, Osteen (1994, 114) indicates that teachers regard "student discipline" to be among their top workplace concerns.

The Influence of Behavior on School Organization, Teaching, and Achievement

Several studies indicate that students, through their conduct, directly influence school functioning and effectiveness.[2] Coleman, Hoffer, and Kilgore (1982a) report that the key factor explaining the achievement gap between Catholic and public schools is "the behavior of students in the school as a whole" (75).[3] Purkey and Smith (1983) indicate that order and discipline, and proper management of student behavior, are among qualities essential to effective schools. They further assert that "common sense alone suggests that students cannot learn in an environment that is noisy, distracting, or unsafe" (1983, 445). Similarly, Bryk, Lee, and Smith (1990) report that clear and consistent rules and policies improve the general climate of the school and bolster staff and student morale. Furthermore, "management strategies" that decrease school disruption are associated with a "range of positive outcomes" (169).

In Chubb and Moe (1992), the variable *school organization*[4] (which in a preceding stage of the analysis is established as a determinant of student achievement) is regressed on a set of school traits and control variables including student behavior. Of

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[2] Bryk, Lee, and Holland (1993), an extensive examination of Catholic schools, does not examine student behavior as a central focus, but aspects of the study are relevant to the present discussion. Their concept of social relations (a concept broader than, but seemingly linked with, behavior) is examined in connection with its influence on school organization. In the eleventh chapter, teacher attributes (*teacher efficacy*, *enjoyment of work*, *staff morale*, and *teacher absenteeism*) are regressed on an elaborate index entailing twenty-four diverse variables (largely concerned with social relations) named "community organization" (284-286). The findings affirm the influence of the community organization index. The results pertain to the aggregated index in its collective form, not to the elements, thus conclusions about particular elements of social life can not be drawn.

[3] Coleman, Hoffer, and Kilgore (1982a) interpret the behavior variables as school disciplinary policies (75). Goldberger and Cain (1982) criticize this interpretation as groundless. Readers may wish to explore Coleman, Hoffer, and Kilgore (1982a 74-75); Goldberger and Cain (1982, especially 119) and for a brief thematically related discussion, Coleman and Hoffer (1987, especially 156).

[4] *School organization* refers to *overall* school functioning.

the predictors, no variable (aside from prior achievement) shows a stronger influence on school organization than does student conduct.[5]

Alexander, Entwisle and Dauber (1993) find that a student's behavior (as indicated by sociality, enthusiasm, and focused attention) is related to his or her academic achievement (while controlling for prior achievement). "Classroom behavior thus is an important influence on academic development...both by enhancing learning *and* through the dynamics of teacher-pupil relationships" [emphasis in original] (813).

Several studies indicate how student problem behavior may directly undermine teacher effort and instructional quality. Studies of teacher stress and burnout (Blase 1986; Chen and Miller 1997; Gold 1985; Greenfield and Blase 1981; Pajak and Blase 1982; Schwab 1983; Tomkins 1995) reveal that student behavior influences teachers' emotional states, commitment to instruction, professional effort, and job-staying. A study employing multivariate regression analysis identifies student misbehavior, apathy, and violence as among the most important impediments to teacher job satisfaction (U.S. Department of Education 1997). Research on teacher motivation (Johnson 1986) highlights the role of relationships with students as an intrinsic reward of teaching, and other research has linked teacher motivation with their dedication and effort (Pajak and Blase 1982; Blase 1986).

The Incidence of School Discipline Problems

Research characterizing the incidence of student problem behavior in the United

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[5] The effect sizes for the "most influential" variable groups were: prior student achievement (.58), student behavior problems (-.35), administrative constraint (-.22), parent SES (.21), and personnel constraint (teachers union) (-.19) (p. 160).

States indicates that moderate-to-serious transgressions do occur, but are not typical of experiences in most schools. Moreover, outright violence is *not* likely to be viewed as the *most important problem* facing educators (U.S. Department of Education 1996).

> Nationally, 68 percent of public school teachers rated student absenteeism as a moderate or serious problem in their schools. Of the student behavior problems that teachers were asked about... absenteeism was the one rated serious most frequently... (114).

However, while the incidence of serious violations is not high, such violations at low or moderate rates nonetheless warrant concern. Twelve percent of all elementary and secondary school teachers were threatened by a student between 1993 and 1994, and 4% were attacked (U.S. Department of Education, The condition of education, 1999). The most common reported *crime* at the middle and high school levels, in the 1996-97 school year, was "physical attack without a weapon" (Kaufman et al. 1999). Fully 39% of high school seniors reported having had something stolen in the previous 12 months. Twenty-five percent reported that their property was deliberately damaged. Twenty-one percent reported being threatened *without* a weapon, and 12% reported being *injured* without a weapon. Eleven percent were threatened with a weapon, and 5% were *injured* with a weapon (U.S. Department of Education, The condition of education, 1999, 54).

Research Focus

In investigating influences on student conduct, of particular interest are factors that can be manipulated by policymakers. One such variable is the type of school (e.g., public, Catholic, and other private) that a student attends. Many parents have urged government to provide greater support to Catholic and other private schools, arguing they

are more effective, but the question of whether Catholic and other private schools are more successful in attaining the goals of education has not been entirely resolved. A pressing unknown is whether schools of different types actually vary in their influences on student conduct. The question of what independent relationship exists between school type and student behavior (after controlling for diverse non-school factors) is the central question of this study.

Significance and Implications for Policy

As noted earlier, a large body of literature has addressed academic learning and pedagogical variables related to content mastery. However, little research exists that addresses student behavior, leaving policymakers with limited information in this critical area. While previous literature indicates there are differences in behavior among students attending schools of different types, the question of the source of these differences remains unresolved. The present study will investigate the relationships between school type and student conduct while controlling for a variety of alternative predictors. By estimating school influences in the presence of diverse controls, alternative explanations for school differences can be investigated.[6]

This study has implications for public policy. First, if schools differ in their influences on student behavior, this would be pertinent to debates about policies (such as tuition tax credits and vouchers) that affect access to Catholic and other private schools.

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[6] Hallmarks of the present study include; 1) reliance on contemporary theory and data; 2) a renewed and systematic emphasis on controlling for often under-represented family determinants; 3) examining behavioral changes longitudinally; 4) examining not just public and Catholic schools, but also other-private schools; 5) exploring relationships in the initial high school years; 6) distinguishing between several different indicators of behavior; and 7) examining a diversity of underlying school-based determinants of behavior.

Second, policy implications may be drawn from the apparent influences of various school traits (such as class size and disciplinary policies) on conduct. Awareness of the characteristics of effective schools may lead to avenues of more widespread educational improvement. Finally, the influence of family traits (such as a child's experiences at home) may have important implications. Although family traits are not always viewed as manipulable through policy, knowledge of the influence of family qualities may nonetheless prove useful if policy strategies that reinforce essential family traits can be identified.[7]

A Note Concerning Selection Bias

Most large-scale education studies comparing schools are limited by the non-equivalence of their respective school populations. Students are not randomly assigned to schools, and it seems reasonable to expect that families selecting different school types may differ in ways important to student outcomes. Moreover, non-equivalence may be generated by school policies such as competitive admissions. To the extent that this is so, there is a risk that variation in student behavior due to family differences may falsely appear attributable to the student's school. Employing extensive controls for family influences (and for prior outcomes) may reduce this threat, but such controls should not be seen as creating absolute equivalence among the students compared.

[7] Such policy alternatives could have the capacity to reach any student exhibiting adjustment problems, regardless of the type of school attended.

CHAPTER 2

LITERATURE

It is important, before proceeding, to consider established findings about the determinants of student conduct. The first section of this chapter contains a discussion of prevailing causal theories of deviance and delinquency, emphasizing broad theoretical principles. The second section enumerates specific variables identified as likely predictors of behavior. The third section focuses on *school* qualities linked with student conduct. The final section provides a conceptual framework that will guide the research agenda of the present study.

Theories of Deviant Behavior

This section contains a discussion of theories of deviance and delinquency as the foundation for explaining student behavior in school,[8] emphasizing in particular theories characterized as being supported by evidence.[9]

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[8] DiPrete and Peng (1981) rely on such theories in their investigation of student behavior. Theories of deviance cover a wide variety of acts, and are not strictly theories of criminality (Thio 1998; Little 1996). Hirschi and Gottfredson (1994) point out that the correlates of trivial and serious acts are generally the same, and they conceive of different acts, including *school misbehavior*, *delinquency*, and *criminality* (16), as being varying forms of the same thing.

[9] The following discussion relies primarily on Vold, Bernard, and Snipes (1998), Shoemaker (1996), and Akers (1997), which provide unusually substantive assessments of the empirical validity of the theories.

Biological Theories

Shoemaker (1996) reports that there is evidence supporting biological determinants of deviance and delinquency, including heredity, serotonin, testosterone, brain dysfunction, use of alcohol, use of some drugs, lead, head injury, pregnancy/birth complications, and a history of family psychiatric problems (Vold, Bernard, and Snipes 1998). Having a learning disability has been identified as a correlate of behavior problems in school. However, Shoemaker (1996) suggests that correlations between learning disability and "school problems" (34-7) may be due to factors such as academic failure, social rejection, or spending time with troubled peers.

Psychological Theories

Shoemaker (1996) asserts that the overall assessment of psychological theories (including psychoanalytic explanations, personality theories, and intelligence) is not strong, and in some instances, the theories are not measurable. Vold, Bernard, and Snipes (1998) indicate that instances of deviance may be seen as components of personality disorder (99-101).

Strain Theories

Strain theory maintains that deviance is due to lack of means to attain socially valued goals. Youth frustrated by their poor chances for success may repudiate "dominant" values and seek instead short-term gratification through status attained by violating established norms. Strain has been defined as poverty, negative relationships, stressful life events, and negative subjective experiences or emotions such as depression, fear, or anger (Vold, Bernard, and Snipes 1998; see also Shoemaker 1996).

Theories of Poverty and Economic Conditions

Shoemaker (1996) reports that findings regarding the influence of poverty are inconsistent, and that theories of poverty do not explain middle or upper class delinquency. Vold, Bernard, and Snipes (1998), however, indicate that although the evidence for *poverty* (absolute levels of disadvantage) is weak, the influence of *inequality* (relative levels of disadvantage) has been affirmed.

Attachment Theory

Attachment theory maintains that children draw on the "secure base" of parent or familial relationships as a foundation for "launching out" into unfamiliar situations. This framework suggests the importance of authoritative (effective) parenting,[10] and "parental separation" (Bretherton 1992, 760). Attachment has been operationalized as the child and parent having a positive relationship as indicated, for example, by constructive time spent together. A child lacking in attachment to a parent or family relationships will, according to attachment theory, be at greater risk for delinquency.

Learning Theories

Learning theories (including *social learning* and *differential association*) highlight ordinary learning as a cause of deviance, and in particular "...how parents transmit the values and standards of society in a variety of domains to their children," particularly through "observational learning" and "direct consequences" (Grusec 1992,

[10] Summarizing this perspective, Bretherton (1992) indicates "Such parents tend not only to engage in fairly frank communication of their own working models of self, of their child, and of others, but also indicate to the child that these working models are open to questioning and revision" (767).

776, 779).[11] Vold, Bernard, and Snipes (1998) report that "In general, it seems reasonable to conclude that ideas and beliefs learned in associations with other people do have a direct causal impact on criminal behaviors," and that the influence of social learning is frequently relatively large.

There is considerable evidence for *peer influences* as a type of social learning. DiPrete and Peng (1981) find peer influences to be the factor most highly related to student behavior. Shoemaker (1996) notes that, while the mechanisms underlying peer influences are not completely understood, "Research continues to document the importance of peer attachments..." (142).[12]

Social Interaction

Social interaction theory (Patterson, DeBaryshe, and Ramsey 1989) maintains that family members train the child to perform antisocial behavior through in-home conflict and/or inadequate parenting. "The effect of the inept parenting practices is to permit dozens of daily interactions with family members in which coercive child behaviors are reinforced" (330). Variables of interest include the style and consistency of discipline, parental involvement with the child, and monitoring and supervision of the child's activities (329).

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[11] This theory is said to have driven the widespread contemporary interest in "psychological techniques of discipline" and "parental warmth" (Grusec 1992, 780).

[12] Evans et al. (1992) note that much apparent evidence for so-called peer group influences may in fact represent an individual's selection of friends (and/or alternatively families' selection of communities and schools). Such findings suggest that reductionist interpretations of peer influences should be avoided. Also relevant, Patterson, DeBaryshe, and Ramsey (1989) provide evidence suggesting that peer influences can be a consequence of the child's experiences in the home. For further discussion of peer influences, see also Vold, Bernard, and Snipes (1998), and Henggeler (1989).

Social Control (and Self-Control) Theories

Social control emphasizes *bonds* to individuals and/or institutions, and *opportunities* to undertake deviant acts. Bonds arise through four elements: *attachment, involvement, commitment,* and *belief* (Vold, Bernard, and Snipes 1998, 207-213). In another version of control theory, Michael Gottfredson and Travis Hirschi argue that *self-control* is the essential construct explaining deviance.[13] The self-control variables of *impulsivity*, *risk-seeking*, *self-centeredness*, *physical activities*, and *temper*, have explained outcomes including cutting school, drinking, smoking, gambling, and drunk-driving (Vold, Bernard, and Snipes 1998, 216).

Determinants of Deviant Behavior

This section enumerates *specific variables* previously linked with deviance (violating rules, norms, or laws).[14] The sources drawn upon to construct the compilation

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[13] This theory has been subject to the critique that it is tautological, that is, that the only way to ascertain whether people have low self-control is to see "whether they engage in 'low self-control' behaviors, including criminal behavior" (Vold, Bernard, and Snipes 1998, 215). In a further assessment, Shoemaker (1996) suggests that self-control assumes an *intermediate*, *intervening* position between delinquency and a variety of preconditions.

[14] The variables identified manifest unambiguous overlap with those highlighted in research on academic achievement (Hirschi and Gottfredson 1994; Hinshaw 1992). A review by the National Center for Education Statistics indicates just how multifaceted are the traits identified as important predictors of student outcomes. Categories of family factors include not just the familiar *sociodemographic background, employment, and income* category, but also the categories *family organization, composition, history/turbulence*, and *family processes* (U.S. Department of Education, A Birth Cohort Study, January 1999).

Variables (or variable groups) comprising the category *family processes* include stimulating activities; stimulating materials; appropriate discipline, warmth, physical affection; and emotional supportiveness; involvement with two parents; parent's expectations; sibling relationships; neighborhood effects on parenting; gender typing; and parental and other family relationships. Factors comprising the category of *family organization, composition, history/turbulence* include household composition; parental marital status/cohabitation status; child's living arrangement history; parents' childbearing history; circumstances of conception, pregnancy, and delivery; child's health status at birth; parental psychological well-being; stress/anxiety related to new parenting role; parental health/risk behaviors. Variables comprising the category *sociodemographic background, employment, and income*, include child age,

(continued...)

of determinants are Vold, Bernard, and Snipes (1998), Logue (1998), Akers (1997), Farrington (1996), Shoemaker (1996), Henggeler (1989), Loeber and Dishion (1983), and Loeber (1990).

Family/Parenting Factors

- poor parental child-rearing techniques such as ineffective, harsh, or inconsistent discipline and supervision
- family structure (attachment to two parents at home)[15]
- family environment marked by low affection, high conflict, or violence
- weak family bonding (versus family belonging and involvement)
- parent involvement[16]
- deviant or antisocial parental behavior; convicted parents or siblings
- parent(s) with anxiety, depression, and/or mental health problems

Individual Factors

- prior conduct problems
- weak attachments to others
- failure to learn higher cognitive skills (including moral reasoning and empathy)
- poor school performance
- personality characteristics such as impulsivity, insensitivity, a physical non-verbal orientation, and a tendency to take risks
- chronic physiological arousal and frequent experience of negative emotions

Biological Factors

- certain neurotransmitter imbalances such as low serotonin
- certain hormone imbalances such as high testosterone

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[14](...continued)
gender, and race; immigration history; grandparent characteristics; parents' education, training, aspirations, and cognitive attainment; employment; income and wages; and public assistance recipient status (See 19-45).

[15] Shoemaker (1996) suggests that the effects of growing up in a broken home may be difficult to measure, and reports that researchers have questioned the connection between broken homes and delinquency. By contrast, there is considerable support for a relationship between family relationships and delinquency (172, 177).

[16] Studies suggest that some types of parent involvement may matter more than others. Bryk, Lee, and Holland (1993) indicate that the important factor is parents' engagement with the child, and that involvement in the school is relatively unimportant. Sui-Chu and Willms (1996), and Hickman, Greenwood, and Miller (1995) reach similar findings.

- central nervous system deficiencies such as frontal or temporal lobe dysfunction
- autonomic nervous system variations such as unusual reactions to anxiety
- hyperactivity, anxiety, and impulsivity (e.g., restlessness, poor concentration, daring)
- ingesting alcohol and many illegal drugs
- toxins such as lead
- prenatal and perinatal factors (such as maternal substance use and/or birth complications)
- low IQ
- head injuries

Peer Factors

- peer rejection
- association with others who engage in or approve of deviant or delinquent behavior

Socioeconomic and Social Factors

- economic inequality or deprivation (perhaps involving frustration)
- large family size and/or overcrowded home conditions
- cultural values emphasizing goals which are not attainable through "legitimate" means, perhaps involving frustration and/or the tendency to engage in self-interested behavior
- neighborhoods with high rates of family dysfunction and high mobility
- urban environments marked by racial and social isolation
- media dissemination of techniques or rationalizations relevant to law violation
- societal stigmatization (versus reintegration) of deviants and blocking of legitimate opportunities

Educational Factors

- curriculum relevance
- fair/consistent disciplinary policies
- strict disciplinary policies
- curricular tracking
- relations/bonds with teachers

School Influences on Student Behavior

This section contains a discussion of literature on school determinants of student behavior, including research on the connection between school type and student conduct.

Strict Discipline

The evidence regarding the influence of disciplinary policies appears mixed. While some research (Pestello 1989) has failed to find support for the speed, severity, and certainty of disciplinary policies, DiPrete and Peng (1981) report "When we controlled for the level of misbehavior of sample sophomores, schools with larger proportions of sophomores reporting that they had been disciplined usually had lower levels of misbehavior in the senior classes than did other schools" (xxi).

Fair Discipline and Moral Authority

Purkey and Smith (1983) highlight the importance of the fairness of school discipline: "some evidence exists indicating that clear, reasonable rules, fairly and consistently enforced, not only can reduce behavior problems that interfere with learning, but also can promote feelings of pride and responsibility in the school community" (Purkey and Smith 1983, 445). Bryk, Lee, and Smith (1990) suggest further that "management strategies" should involve not just systematic rule enforcement, but also notions of "justice and responsibility." They further highlight the need for a community-oriented philosophy of schooling and the importance of "moral authority" (169).

Curricular Tracking and Related Factors

Lower tracks are said to be characterized by more punitive discipline, strained social relationships, and often less-engaging instruction. Whether tracking itself causes problem behavior, is still debated. The ostensible influences of tracking have been attributed to teacher-student interactions, peer influences, and differences in perceived future relevance of curricula (Hirschfield 1998).

Admissions and Expulsions

Estimates of a school's influence on student conduct may be (artificially) altered by the presence of competitive admissions and/or disciplinary expulsions. Controlling for a school's use of these policies can help assure that their "influence" is not falsely attributed to the type of school attended.

Class Size

Education production function research provides conflicting views of the importance of various educational inputs (such as class size) to school outcomes (Hanushek 1996; Hedges and Greenwald 1996). However, some relatively recent studies provide evidence that class size does influence student learning. Murnane and Levy (1996) report that impact of class size may be difficult to identify employing traditional regression analysis. Moreover, the randomized study by Finn and Achilles (1990) finds that class size has significant and meaningful effects on academic achievement. The implications of such studies for *behavior* per se are somewhat uncertain, but the prospect of influences on conduct seems tenable.

School Type

Coleman, Hoffer, and Kilgore (1982a) posit that Catholic schools have favorable influences on student conduct. As noted earlier, the authors report that the key factor explaining the achievement gap between Catholic and public schools is "the behavior of students in the school" (75). The authors interpret the behavior variables as indicators of school discipline.

Few studies, however, have directly investigated the influences of school type on student behavior (and the limited studies that have done so have left unexamined a large

number of alternative explanatory causes). The most notable such analysis is Marsh (1991). In that study, the dependent variable is the mean of z-score of responses to the survey items *peer perception as troublemaker*, *having disciplinary problems, being suspended, cutting classes,* and *being in serious trouble with the law*. The study finds that behavior in Catholic and public schools is significantly different (β=.03). This relationship is slightly greater than that found for "affective" outcomes like self-concept, which are regarded as small,[17] and slightly less than the difference in academic achievement (340-41). The study is limited, however, in its controls for family influences, and in its measures of student behavior.[18]

Previous studies of student behavior have been criticized for inadequate controls for pre-existing differences in student populations (Marsh 1991; Vaughn 1998).[19] The importance of adequate controls for family factors is reiterated in many studies. Clifford and Heath (1984) call the need to control for family background the "cornerstone of educational sociology" (88). Moreover, Coleman, Hoffer, and Kilgore (1982b) assert:

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[17] The coefficients for Catholic schools for the other outcomes were as follows; self-concept, β=.01; locus of control, β=.01; mathematics, β=.04; reading, β=.04; science, β=.02; and writing, β=.04 (340-41).

[18] The present study follows a suggestion in Marsh (1991) that research employ data in the National Education Longitudinal Study to exploit its enhanced measures of behavior.

[19] All previous research identified has employed relatively limited controls for pre-existing student and family differences and for peer effects. See DiPrete and Peng (1981), Greeley (1982), Guerra, Donahue, and Benson (1990), and Marsh (1991). DiPrete and Peng (1981) and Greeley (1982) do not draw inferences regarding individual-level relationships between school-type and student behavior (the question of interest in the present study). DiPrete and Peng (1981) was the sole study identified that relies on explicit theories of deviance.

The need for reliance on longitudinal data is noted in Marsh (1991), Hinshaw (1992), Hanushek (1986), and Chubb and Moe (1992). The importance of contextual (peer) effects is discussed in Vold, Bernard, and Snipes (1998), Henggeler (1989), Shoemaker (1996), and DiPrete and Peng (1981).

> For if studies of school achievement have shown one thing, it is the importance of the family. And school achievement is only one element in the process of becoming adult; the family's contributions to other elements are even more important (191).

The variety of ways families appear to affect child outcomes stands in contrast to the limited controls (such as parental education and income) that education studies have commonly relied on (Hanushek 1972, 1986; Bridge 1979).[20] Zhang (1993) argues against operationalizing family effects strictly according to the "conventional status attainment model" wherein outcomes are examined in relation to measures of social and economic origin: "... these forms of social capital may turn out irrelevant to educational outcomes of children if parents are not an important part of their children's lives" (9). Whether a small set of family variables (such as socioeconomic status) can adequately represent family influences is uncertain. Heath and Clifford (1981) note that "Failure to control adequately for home background vitiates more studies of school effectiveness than any other defect" (33).[21]

Conceptual Framework

This investigation seeks to control for many determinants highlighted as important in past research. Employing regression analysis and investigating a large

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[20] In prominent education policy studies, socioeconomic status is the family background proxy variable most commonly used (e.g., Chubb and Moe 1992). In the models of student engagement in Bryk, Lee, and Holland (1993), social class is accompanied by measures of *race/ethnicity*, and *academic background* (286).

[21] Families of students attending schools for which tuition is required are expected to be characterized by advantages in family traits compared to families for whom no tuition is required. The student composition of schools may differ also due to school policies such as competitive admissions. Although research (Bryk, Lee, and Holland 1993) indicates that Catholic schools are not highly selective, and that very few students are expelled, it seems possible that differences among student populations may be increased by these policies.

sample of students is particularly suited to this objective. Although in a large quantitative study no single student can be observed directly and intensively, gathering data on many variables (and doing so with respect to many students) allows investigation of the independent sources of variation in conduct. Such an analysis will also allow for generalization beyond what would be possible in a study examining just a few students or schools.

This study proposes a theoretical framework in which school, individual, family, and peer factors simultaneously influence behavior, as illustrated in exhibit 1 (page 20). By estimating the influences in the presence of diverse controls, each influence can be estimated with greater confidence than would otherwise be possible.

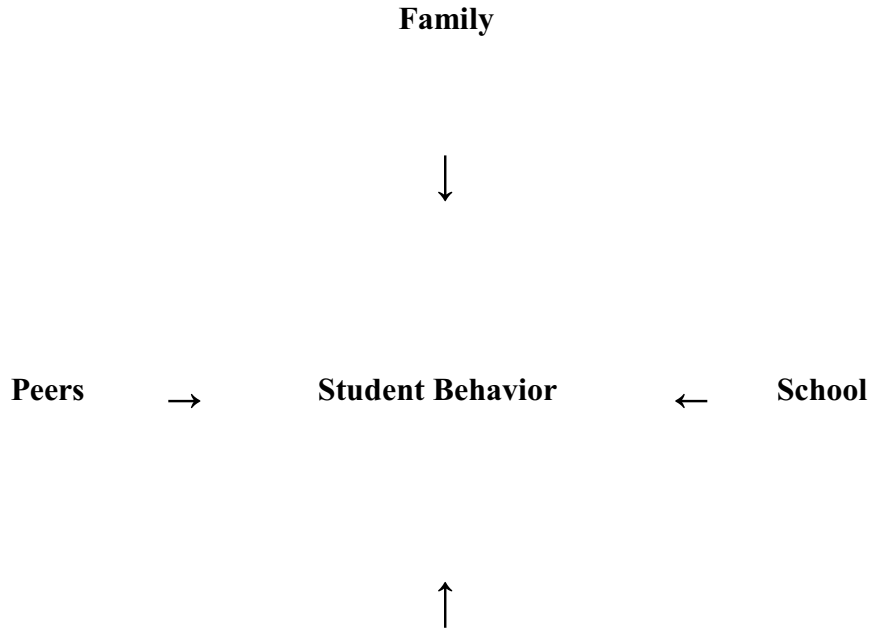
Primary and Secondary Research Questions

The research questions that guide this study are:

- What is the relationship between the type of school attended and student behavior, controlling for individual, family, and peer influences?
- To what extent does student behavior differ across the different school types?
- To what extent do students in different school types differ in individual and family traits?
- To what extent do gender and peer influences vary in the different school types?
- To what extent do school types differ in various aspects of school organization that are thought to influence student behavior?
- To what extent do aspects of school organization explain student behavior?
- To what extent do influences of school organization explain the influences of school type on student behavior (if any)?

Chapter 3 provides elaboration of the methods employed to address these questions.

Exhibit 1. Conceptual Framework of Main Analyses



CHAPTER 3

METHODOLOGY

The primary question of the present study is that of what relationship exists between the type of school a student attends and his or her conduct, after controlling non-school factors. This chapter describes the methods used to address this question (and related secondary questions), and is comprised of six sections: I. Analytical Design; II. Definition of Student Behavior; III. Secondary Research Questions; IV. Data; V. Dependent Variables; VI. Independent Variables; and VII. Independent Variable Indices.

Analytical Design

Much of prior research has been concerned with simple zero-order correlations, and most studies employing regression have employed limited proxies to represent family influences. Farrington (1993) claims that "no previous researcher" has adequately examined alternative possible factors (individual, family, and neighborhood) simultaneously (7).[22] This study conceives of behavior as a function of school traits, individual factors, family influences, and peer factors, and will estimate the independent

[22] Bronfenbrenner (1979) calls for attention to diverse (proximal and distal) influences on adolescent development. Vold, Bernard, and Snipes (1998) discuss the need for an empiricist emphasis on locating sources of independent variation (324, 335).

influence of these predictors using regression analysis.[23]

Student Behavior = f(school traits, individual factors, family influences, peer factors)

Estimating Levels of and Changes in Behavior

Relying on longitudinal designs is often a preferred strategy to remedy the non-equivalence of students attending different school types (Marsh 1991; see also Hinshaw 1992; Hanushek 1986; and Chubb and Moe 1992). This approach, often referred to as *value-added*, is contrasted to estimation using cross-sectional models, which provides a lesser degree of prior controls. The results of longitudinal change models provide relationships *given* prior levels of the outcome, setting aside any influences prior to the time of measuring the initial outcomes. Models of levels, although lacking the same degree of controls for prior student differences, are free from this limitation. This study will therefore employ both value-added and cross-sectional approaches.

Analyses will estimate behavior in 10th and 12th grade. Value-added models will control for behavior two years prior. Change models for *some* violations (alcohol and substance use) are possible in 12th grade only (due to limitations of 8th grade data). In investigations treated separately (appendix 4), each indicator of behavior will be analyzed separately employing logistic analysis.

Independent Variable Indices

In order to manageably examine a large number of independent variables, this study will preliminarily investigate collections of individual, family, and peer factors,

[23] It is possible to incorporate into analyses the fact that students are clustered into schools. Moreover, it is possible to account for the weighting employed in the sample design. However, the findings of the study are not meaningfully changed when employing these alternative specifications.

respectively, to ascertain which predictors prevail in importance, and to obtain coefficients needed to create a reduced number of indices (for use in final models). Indices comprise the value of behavior predicted by the components of the index.[24]

Definition of Student Behavior

Student behavior refers to the degree of adherence to school rules and/or norms (see DiPrete and Peng 1981).[25] In this study, student behavior specifically refers to the degree to which a student is tardy, comes to class prepared, is attentive in class, is disruptive; cuts class; fights; or is under the influence of alcohol, marijuana, or cocaine in school. In all analyses of the study, behavior is operationalized *positively* as *adherence* to rules. Thus, a negative sign in results will signify a relationship that is negative in the colloquial sense.

Secondary Research Questions

This study investigates four subsidiary topics: 1) differences across school types in student behavior; 2) differences across school types in individual and family traits; 3) interactions between school influences and other variables, and 4) underlying school factors that may explain variation in student behavior.

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[24] The directionality of indices is kept consistent with that of the components.

[25] While some academic traditions may have traditionally reserved a place for identifying the *conceptual essence* of the construct being investigated, others argue forcefully that this endeavor is not meaningful and does not come to practical resolution (see Taylor 1970; Brand 1979). Previous research on school type and student behavior has generally *not* proposed a unifying conceptual definition of misbehavior. In DiPrete and Peng (1981) the outcome is termed "discipline and order" and "misbehavior" and is comprised of indicators of attendance, cutting, threatening teachers, fighting, disobeying instructions, and talking back (xix, 125). In Coleman, Hoffer, and Kilgore (1982a) "student behavior" is operationalized as absenteeism, cutting class, students fighting each other, and students threatening teachers (74). Constructs *excluded* from definitions of behavior in previous research, and in the present study, include *cognitive* outcomes, and *internal* attitudes (e.g., locus of control). This study does not systematically address behavior outside school, a topic rich enough to warrant separate investigation.

Differences in Student Behavior

Research indicates that students attending schools of different types vary in their conduct (DiPrete and Peng 1981). This study examines this question using updated data characterizing the proportion of students in each of the school types that exhibit problem behavior. The indicators examined are the following:

- coming to class without homework
- coming to class without books
- being late for school
- being inattentive in class
- being disruptive in class
- cutting class
- fighting
- being under influence of alcohol, marijuana, or cocaine (respectively)

Differences in Individual and Family Traits

Students attending schools of different types may also vary in individual and family attributes that are important to their outcomes.[26] This study provides comparisons of a variety of individual and family traits. Family factors investigated will include not just socioeconomic characteristics, but also traits such as parent-student relationships, communication, and supervision.

Individual Factors

- student has specific learning problem
- student has emotional problem
- student religiosity (internal)
- student race

Family Factors

- socioeconomic status

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[26] Families of students attending schools for which tuition is required are expected to be characterized by advantages in family traits. However, differences in family traits may be subject to shifts over time (Baker and Riordan 1998).

- father lost job in last two years
- family went on welfare in last two years
- student has own room
- family size
- no one home when student returns from school
- latest student can stay out on school nights
- student ran away from home in last two years
- student likes parents
- number of household members student doesn't get along with
- student's parents get along well with each other

Interactions

School influences in this study are generally defined and operationalized as main effects, that is, *direct* influences on students. Research,[27] however, has noted that Catholic schools can have *indirect* influences on academic achievement through interactions with other predictors. The presence of interactions is pertinent to equality of educational opportunity. A high influence of a given predictor (e.g., gender) implies greater variation (and inequality) in outcomes. Conversely, a muted influence signifies less variation (and greater equality). This study undertakes a preliminary exploration of this matter by assessing differences in the influence of *gender*, and *peer effects* (determinants particularly likely to influence student conduct) in public, Catholic, and other private schools. To do so, indicator variables are employed to allow the influence of these predictors to take a unique value for each school type.

Underlying School Factors

This study will also investigate school traits that may influence student behavior. If institutional factors that influence conduct can be identified, new avenues for large-

[27] In previous analyses of student achievement, socioeconomic status displayed a smaller apparent influence in Catholic schools than it did in public schools (Greeley 1982).

scale school reform may be identified. Prior to investigating influences, the study will compare the prevalence of school qualities across the different school types. This may help identify important differences in the school types, and will provide a foundation for subsequent regression analyses. Six sets of (behavior-specific) disciplinary policies, and ten general aspects of school organization will be investigated.[28] The school traits examined are the following:[29]

- Teacher policies/practices regarding homework (record; return; discuss)
- Policies regarding classroom disturbance
- Policies regarding skipping classes
- Policies regarding injury to another student
- Policies regarding use of alcohol at school
- Policies regarding use of drugs at school
- Entire school enrollment
- Class size
- Achievement level of class versus average (teacher rating)
- Difficulty level of class for each student
- Perceived fairness of school discipline (student-reported)
- Relevance of mathematics
- Relevance of English
- Teacher certification[30]
- Teacher majoring in education
- Parents notified when student is sent to principal's office for disruptive behavior

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[28] Policies pertaining to homework will be examined in models of less serious behavior. Policies relating to disruption, skipping, injury, alcohol, and drugs, will be investigated in models of more serious behavior. Factors other than disciplinary policies will be investigated with respect to both more serious and less serious behavior.

[29] Variable descriptions are provided in appendix 3.

[30] The expected usefulness of *certification* and *majoring in education* is uncertain. There is a long-standing debate over most material school inputs, particularly where there may be an unclear connection to classroom activities (Burtless 1996). However, it seems appropriate to investigate these manipulable determinants specifically in connection with student behavior, an exploration not undertaken to the researcher's knowledge.

Data

Scope of NELS:88

This study employs data gathered in the National Education Longitudinal Survey of 1988 (NELS:88), a multi-year investigation commissioned by the U.S. Department of Education.[31] The survey was designed to investigate the effects of various elements of schools on students in order to inform the "development and examination" of educational policy (U.S. Department of Education 1994, 6), and is therefore directly relevant to the primary and secondary questions of this study. NELS:88 contains a national sample. It contains an unusually rich collection of variables relating to students, parents, teachers, and schools; and includes data collected from different types of schools.

Data Collection and Data File Preparation

To help attain participation of schools in the survey, pre-data collection activities for NELS:88 included securing approval for the project from the Education Information Advisory Council of the Council for Chief States School Officers, the Chief States School Officer of each state, district superintendents, and school principals. For private schools, the National Catholic Education Association and the National Association of Independent Schools, and private school principals were contacted. Principals designated a school coordinator to serve as liaison between project staff and respondents, and selected students were gathered for in-school data collection. Upon survey completion, an attempt was made to retrieve missing or inappropriately marked items, and to confirm identification numbers (U.S. Department of Education, National education longitudinal

[31] All data are available to researchers in a searchable public use CD-ROM electronic codebook (U.S. Department of Education, National education longitudinal study, 1994).

study, 1994).

Entry of student data was performed using optical mark reading procedures. Cognitive tests were photographed onto microfilm for archival storage. Detection of out-of-range codes was completed during scanning or data entry. Student data were scanned to machine-readable form and supplied as raw data. After receipt of all scanned and keyed data, sequenced machine editing and visual inspection were undertaken. Frequencies and cross-tabulations for each variable were examined before and after these steps to verify the accuracy and appropriateness of the automated machine editing processes (U.S. Department of Education, National education longitudinal study, 1994).

Sample

The NELS:88 employed a two-stage stratified and clustered sample design, with schools selected in the first stage, and students in the second. Schools were selected with probabilities proportional to their estimated eighth-grade enrollment. The second stage included random selection of an average of about 26 students per school. Asian, Hispanic, and private school students were disproportionately sampled to provide adequate sub-group representation.

Some 1,052 schools participated; 815 public and 237 private. Students, teachers, and principals were re-surveyed in the cohort's sophomore year, and again in their senior year. Parents were re-surveyed in the cohort's senior year. NELS:88 was designed to constitute a valid probability sample of enrolled students in each cohort. However, about 5.3% of students in the base year schools were excluded on grounds that the survey instruments were deemed unsuitable, due to a student's mental disability, knowledge of English, or physical or emotional problems (U.S. Department of Education, National

education longitudinal study, 1994, 23-4, 26).[32]

Sample sizes in the study's various models range from approximately 16,000 to 17,000. The survey called for systematic follow-up efforts resulting in relatively high response rates (U.S. Department of Education, National education longitudinal study, 1994, 82, 85, 93). Completion rates for the second follow-up are provided in table 1.

Table 1. Survey Completion Rates (Second Follow-up)

Instrument	Weighted	Unweighted
Student questionnaires	91%	92%
Parent questionnaires	90%	93%
Teacher questionnaire	90%	90%
School questionnaire	98%	98%

Missing Data

In order to make fullest use of the available survey data, items missing from otherwise complete surveys are imputed. Missing values for individual, family, and peer variables are replaced with the mean (or mode) response for individuals of the same race and gender. Missing values for school traits are replaced with the mode value for schools of the type the student attends. To limit over-reliance on cases in which several crucial dependent variables need to be imputed, this study is limited to cases in which no more

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[32] The documentation describes the exclusions as follows:

> The NELS:88 base year sample excluded students for whom the NELS:88 survey instruments would be unsuitable (i.e., students with mental disability and students who are not proficient in English) and students whose physical or emotional problems would have made participation in the survey unduly difficult... About 5.3 percent of the students at the base year sample schools were excluded from participation. Of these, 57 percent were excluded because of mental disability, another 35 percent because of language barriers, and 8 percent because of physical disability (U.S. Department of Education 1994, 26).

than half of the components of a dependent variable index are missing.[33]

Observational Error

The National Center for Education Statistics assessed the reliability and validity of NELS:88 data by examining the correspondence between parent and student responses to related items, the consistency among student responses to related items, and the internal consistency reliability of scalable survey responses. The analysis concluded that NELS:88 data exhibited a "high degree" of consistency and accuracy (U.S. Department of Education 1994 80).

Dependent Variables[34]

The NELS:88 includes a variety of student-specific indicators of behavior, collected predominantly through student self-reports (the exceptions are *being disruptive* and *being inattentive*, which are teacher-reported). To study behaviors collectively, but also allow for distinction between behaviors of different severity, the outcome variables are examined within two groups: *less serious* and *more serious*. Although this distinction is inevitably somewhat subjective and arbitrary, it seems consistent with widely-held views regarding different behaviors (every behavior placed in the *more serious* group is either inherently disruptive of learning or is a variant of an expressly illegal act). Moreover, the distinction is also largely consistent with differences in the frequency of the different behaviors: more serious violations tend to be less prevalent than less serious violations. The specific behaviors are the following:

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[33] Indices are discussed later in this chapter.

[34] See appendix 1 for dependent variable names and descriptions.

Less Serious Violations

- being late
- coming to class w/out pencil/paper
- coming to class w/out books
- coming to class w/out homework
- being inattentive in class

More Serious Violations

- disrupting class
- cutting
- fighting with another student
- use of or being under the influence of alcohol
- use of or being under the influence of marijuana
- use of or being under the influence of cocaine

To create indices for each group, variables are provisionally treated as continuous and standardized. The standardized measures are then aggregated into an index.[35] As noted earlier in this chapter, throughout the study behavior is defined positively as *adherence* to rules. In 10th grade, no measure of illegal substance use *in school* is available. Instead, for this grade level, measures of drug use *outside* school are utilized.[36]

Independent Variables

The independent variables are listed below under the headings of school type,

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[35] Respondents were asked typically to select among four or five discrete choices ordered in degree of severity. Some survey response options are numerical (e.g., number of times using an illegal substance), and others characterize frequency adjectivally (*always, often, sometimes*, etc.). Moreover, the different behaviors vary in their rarity and severity. In order to define survey responses numerically in a way that recognizes these differences, survey option responses are coded according to the proportion of students giving a response that is more severe than the given student. Thus, the more mundane the act, the higher the score, and vice versa. Each resulting dependent variable index, however, is exceedingly similar (extremely highly correlated) to the variant formed from arbitrarily assigning consecutive integers to the student's responses. Using one or the other methods does not lead to meaningful changes in the study results.

[36] Moreover, as no measures of illegal drug use are available in 8th grade, a model characterizing change in more serious behavior in 10th grade is not possible.

individual variables, family variables, peer variables, and models of change, respectively.

Descriptions of variables are found in appendix 2.

School Type

- School Type (public, Catholic, or other private)

Individual Variables

- Male
- Religious person
- Nonwhite
- Learning and/or emotional problems
- Strain
- Handicap

Family Variables

- Urbanicity
- Geographic region
- Parent Catholic
- Parents get along
- Socioeconomic status
- Relative SES
- Other SES conditions
- Income
- Family relationships
- Parent knows parents of child's friends
- Family communication
- Family supervision/home rules

Peer Variables

- Percent Caucasian
- Percent single parent
- Percent free lunch
- School mean religiosity
- School mean family influences
- Peer status
- Time spent with peers
- Peer acceptance

Models of Change

Models of change add the following additional predictors.

- Student expectations (of academic attainment)
- Index of prior student behavior

- Index of prior student achievement
- School-aggregate index of prior behavior
- School-aggregate index of prior achievement

Independent Variable Indices

Contemporary research has identified more variables (particularly family traits) believed to influence student outcomes than can be included in any single model. To investigate a large number of variables manageably, groups of individual, family, and peer factors, respectively, are examined in antecedent analyses. Through these initial analyses, coefficients are obtained to create indices for use in final models. (Descriptions of variables and composition of indices are enumerated in appendix 2.) In order to manage the large number of family variables, these are examined in two groups according to whether they more resemble socioeconomic influences, or alternatively, family processes. The variables investigated are the following:

Individual Variables

- Male
- Religious person
- Nonwhite
- Learning problem
- Emotional problem
- Strain
- Handicap

Family Socioeconomic Variables

- Urbanicity
- Geographic region
- Parent Catholic
- Parents have good marriage (parents get along)
- Change in family structure[37]
- Socioeconomic status composite
- Place to study

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[37] Either divorce, separation, death of parent's spouse, marriage or re-marriage, or parent began living with someone, 1988-1990.

- Student has own bedroom
- Number of dependents
- Income
- Relative SES
- Went on welfare
- Stayed on welfare
- Mother lost job
- Father lost job
- Mother died
- Father died
- Parent died (12th grade measure)[38]
- Parents' job status[39]
- Family member used drugs (12th grade measure)

Family Processes

- Family conflict
- Parents understand student
- Parents treat student fairly
- Student dislikes parent
- Parents trust student
- Getting away from parents important
- Student ran away
- Parent knows child's friends
- Parent knows parents of child's friends
- Family activities together
- Family discusses things with student
- Student knows why to obey parents
- Time home alone
- Home alone one week
- Family rule about doing homework
- Family rule how many hours student may watch tv
- Family rule about tv programs student may watch
- Time student watches tv on weekdays
- Student can stay out late on school nights
- Parent monitors activities

Peer Variables

- Percent Caucasian
- Percent single parent

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[38] Several variables measured in the early high school grades were updated in models of 12th grade behavior using data available in the student's senior year.

[39] An index characterizing whether parent was working in past four weeks, and whether spouse was working in the past week.

- Percent free lunch
- School mean religiosity
- School mean family influences
- Student seen as popular
- Student seen as good student
- Student seen as athletic
- Student seen as important
- How often hang out
- How often drive around
- Peer Acceptance

CHAPTER 4

STUDENT BEHAVIOR ACROSS HIGH SCHOOLS

This chapter compares the prevalence of problem behavior in public, Catholic, and other private schools. Such descriptive comparisons bear little on questions of causality, but are relevant to perceptions held by the public and policymakers about the nature of problem student behavior. Previous studies (e.g., DiPrete and Peng 1981) have shown that student behavior in Catholic schools is generally less problematic than that in public schools. However, research indicates there have been changes in the demographic background of students attending different school types (Baker and Riordan 1998). This chapter will examine this question using updated data, focusing on the indicators of behavior of central interest in the study. The indicators examined are the following:

- coming to class without books
- coming to class without homework
- being late for school
- being inattentive in class
- being disruptive in class
- cutting class
- fighting
- being under influence of alcohol
- being under influence of marijuana
- being under influence of cocaine

Student Behavior Differences Across School Types in 10th Grade

Table 2 displays comparisons of 10th grade students attending public, Catholic,

and other private schools.[40] Columns 1, 2, and 5 display the proportions of students in public, Catholic, and other private schools, respectively, that exhibit the behavior described in each row. Column 3 indicates the difference found when subtracting the proportion of students attending Catholic schools that display the behavior from the proportion attending public schools that display the behavior. Column 4 shows the significance of that difference. Column 6 indicates the difference found when subtracting the proportion of students attending other private schools that exhibit the behavior from the proportion attending public schools that display the behavior. Column 7 displays the significance of the difference.

The findings mirror previous studies, showing fewer behavior problems in Catholic schools. Drinking alcohol, however, stands as a surprising exception. For more behaviors than not, including *books*, *homework*, *attentive*, and *cutting*, differences between students attending public and Catholic schools are significant at high levels. Differences for other variables such as *fighting*, *cocaine*, and (anomalously) *alcohol* are also clear. The greatest gaps are found in *cutting* (17%), *attentive* (7.0%), *homework* (5.8%), and *disruptive* (5.8%).

While 10th grade students in Catholic schools display conduct that is clearly favorable, the magnitudes of the differences observed vary considerably for the different behaviors, and large differences are not typical. The difference for *late* is small, as are the gaps for *books* and *fighting*.

The results also show favorable behavior in other private schools relative to

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[40] Results provided in tables are comparisons of proportions, with split points in the distribution chosen where differences were most pronounced.

public schools. Here, the greatest differences are found in *attentive* (9.7%), *cutting* (9.4%), *alcohol* (8.4%), and *late* (-7.6%). A significant difference in *alcohol* is found favoring other private schools, contrary to the anomalous finding for alcohol in Catholic schools. The public-other private differences are often smaller than those between public and Catholic schools. For example, differences for *homework* and *disruptive* (acts decisively less problematic in Catholic schools) are small. Furthermore, the public-other private difference for *cutting* (9.4%), too, is considerably smaller than the public-Catholic margin (17%). Finally, in other private schools, a surprisingly higher incidence for *late* is indicated.

Student Behavior Differences Across School Types in 12th Grade

The greatest differences between public and Catholic schools in 12th grade (table 3) are in *cutting* (14%), and *attentive* (6.8%). However, differences in 12th grade are smaller than the differences in 10th grade. The gaps in *fighting*, and *cocaine* are uncertain, and the small differences in *disruptive* are particularly noteworthy. Alcohol use (here, *in-school* use) is again aberrantly higher in Catholic schools, although now just slightly so. In sum, while an overall trend favoring 12th grade students in Catholic schools is clear, *large* differences in magnitude are *not* typical.

In 12th grade, public-other private behavior differences again broadly favor private school students. As in the 10th grade, statistical confidence in the observed differences is mixed, depending on the behavior in question. The variables showing greater percentage point gaps are *attentive* (13.7%), *disruptive* (-12.0%), *late* (-6.9%), *books* (3.9%), *homework* (3.6%) and *fighting* (3.6%). Certain anomalous findings are noteworthy. There are virtually no school differences in *cutting*, an indicator that

differed considerably between public and Catholic schools. And surprisingly, *disruptive* and *late* appear to be greater problems in private schools. Overall, however, while behavior gaps broadly favor other private schools, they are frequently small.

Conclusion

The findings indicate there are fewer conduct problems in Catholic schools than in public schools. However, the magnitudes of behavior gaps vary considerably across the different acts, and large differences are not typical. For several behaviors, margins are negligible, and for a select few, problems are *more severe* in non-public schools. Moreover, differences in 12th grade are generally smaller than those in 10th grade. Other private schools too show favorable behavior, but by margins far less likely to be confidently distinguishable from zero. It remains to be seen whether school differences will remain in the presence of controls for family influences and other predictors. Before addressing that question, however, it will be useful to compare the individual and family traits of students attending different school types.

Table 2. Percentage of 10th Grade Students Exhibiting Misbehavior in Public, Catholic, and Other Private Schools

	Public	Cath	Public - Cath Diff.[1]	P>|t|	O.P.	Public - O.P. Diff.	P>|t|
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Come w/o books							
Usually/often	6.4%	3.3%	3.1%	.00	6.1%	0.3%	.87
Usually	2.9%	1.0%	1.8%	.00	1.7%	1.2%	.26
Come w/o homework							
Usually/often	18.4%	12.6%	5.8%	.00	17.5%	0.9%	.84
Usually	6.0%	3.2%	2.8%	.00	5.1%	0.9%	.62
Late for school							
1 or more times	74.7%	72.7%	2.0%	.47	82.3%	-7.6%	.00
3 or more times	36.7%	32.2%	4.5%	.11	36.8%	-0.1%	.98
Attentive in class							
Never/rarely/sometimes	30.0%	23.0%	7.0%	.00	20.4%	9.7%	.00
Never/rarely	7.3%	4.5%	2.9%	.00	3.8%	3.5%	.03
Disruptive in class							
Some/most/all of time	19.6%	16.1%	3.5%	.10	47.2%	2.3%	.72
Ever	44.9%	39.1%	5.8%	.06	17.1%	2.5%	.36
Cutting class							
1 or more times	38.4%	21.5%	17.0%	.00	29.0%	9.4%	.03
Fighting							
1 or more times	17.3%	15.7%	1.5%	.51	18.1%	-0.8%	.84
2 or more times	3.5%	1.8%	1.7%	.02	2.1%	1.4%	.05
Used							
Alcohol	61.2%	68.4%	-7.2%	.01	52.7%	8.4%	.04
Marijuana	15.6%	11.6%	4.0%	.02	9.2%	6.4%	.00
Cocaine	2.0%	1.8%	0.3%	.77	0.6%	1.5%	.00

Note: All data are weighted and account for sample design.

[1] Differences may appear imprecise due to rounding.

Table 3. Percentage of 12th Grade Students Exhibiting Misbehavior in Public, Catholic, and Other Private Schools

	Public	Cath	Public - Cath Diff.[1]	P>|t|	O.P.	Public - O.P. Diff.	P>|t|
Come w/o books							
Usually/often	8.6%	5.4%	3.2%	.00	4.7%	3.9%	.00
Usually	4.3%	2.3%	2.0%	.00	2.3%	2.1%	.00
Come w/o homework							
Usually/often	16.2%	14.5%	1.7%	.33	15.8%	0.5%	.89
Usually	6.0%	3.8%	2.2%	.02	2.4%	3.6%	.00
Late for school							
1 or more times	81.2%	80.1%	1.1%	.65	88.1%	-6.9%	.00
3 or more times	47.3%	44.4%	3.0%	.33	51.4%	-4.1%	.34
Attentive in class							
Never/rarely/sometimes	25.3%	18.5%	6.8%	.00	11.6%	13.7%	.00
Never/rarely	5.7%	3.1%	2.6%	.00	0.9%	4.8%	.00
Disruptive in class							
Some/most/all of time	10.7%	8.9%	1.8%	.33	22.2%	-11.5%	.14
Ever	30.9%	32.7%	-1.8%	.60	42.9%	-12.0%	.11
Cutting class							
1 or more times	51.1%	36.9%	14.2%	.00	47.6%	3.5%	.56
Fighting							
1 or more times	11.4%	9.3%	2.1%	.18	7.7%	3.6%	.05
More than 2 times	2.5%	2.4%	0.1%	.90	0.5%	1.9%	.00
Used							
Alcohol	12.1%	14.7%	-2.5%	.21	9.1%	3.0%	.06
Marijuana	6.3%	5.2%	1.1%	.30	4.1%	2.2%	.06
Cocaine	0.8%	0.7%	0.1%	.74	0.6%	0.3%	.30

Note: All data are weighted and account for sample design.

[1] Differences may appear imprecise due to rounding.

CHAPTER 5

INDIVIDUAL AND FAMILY TRAITS

The previous chapter found there are differences in the behavior of students attending the three school types, but the source of these differences is not clear. Students attending schools of different types vary in individual and family attributes that impact on their educational success (Coleman, Hoffer, and Kilgore 1982b). Moreover, the attributes of students attending different school types can change over time (Baker and Riordan 1998). The present chapter will compare individual and family traits of students attending different school types. The individual traits to be examined include having emotional or learning problems, race, and internal religiosity. Family factors relate not just to socioeconomic conditions, but also to internal family functioning, parent-student interactions, parental monitoring, and the parent-student relationship.

Comparison of Students in Public and Catholic Schools

Table 4 displays the proportion of students attending public, Catholic, and other private schools characterized by the attributes examined.[41] The results consistently show

[41] Columns 1, 2, and 5 display the proportions of students (or their families) in public, Catholic, and other private schools, respectively, characterized by the attributes listed in each row. Column 3 indicates the difference found when subtracting the proportion of students attending Catholic schools characterized by the attribute from the proportion attending public schools characterized by the attribute.
(continued...)

advantages among Catholic school students (with family size representing the sole exception). The findings for *SES*, *race*, and *parents get along* display advantages for Catholic school individuals, consistent with previous research. Advantages are also found for the attributes *religious person*, *being out late*, *likes parents*, *ran away*, *emotional problem*, and *welfare*.

The sizes (and statistical significance) of the differences, however, are highly variable, and for several indicators, differences are negligible. Rates for *welfare* and *ran away* are *proportionately* larger in public schools, but the gaps are not substantial in terms of percentage point differences. Conspicuous *non-differences* are observed for traits including *own room*, *gets along with family*, *learning problem*, and *father lost job*. Thus any expectation that differences might appear pervasively is not supported by the findings.

Comparison of Students in Public and Other Private Schools

The findings indicate that students in other private schools are advantaged relative to public school students often to a *greater degree* than was found for pupils in Catholic schools. Public-private differences are found in some traits where public and Catholic families differ little, including *own room*, *parents get along*, and *father lost job*. The differences for *SES* and *race* are particularly large. Again, however, the sizes of differences are quite varied. For the attributes *ran away*, and *emotional problem*, students attending other private schools are *not* advantaged.

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[41](...continued)
Column 4 displays the significance of that difference. Column 6 indicates the difference found when subtracting the proportion of students attending other private schools characterized by the attribute from the proportion attending public schools characterized by the attribute. Column 7 displays the significance of the difference.

Conclusion

The results show that students attending Catholic and other private schools possess advantageous backgrounds at rates somewhat greater than students attending public schools. For some traits, pupils in other private schools are characterized by greater advantage than students attending Catholic schools. The degree of advantage varies greatly across the different characteristics examined, and many differences are moderate or small. While families of students in Catholic schools tend on the whole to be advantaged relative to students attending public schools, the degree of this advantage should not be overstated.

Table 4. Family and Individual Attributes of Students in Public, Catholic, and Other Private Schools

	Public	Cath	Public - Cath		O.P.	Public - O.P.	
			Diff.[1]	P>|t|		Diff.	P>|t|
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
White or Asian	74.7%	79.0%	-4.3%	.25	92.9%	-18.2%	.00
SES above mean	48.2%	74.7%	-26.5%	.00	86.2%	-38.0%	.00
Religious person							
Somewhat or very	73.4%	82.6%	-9.2%	.00	81.1%	-7.7%	.01
Limits on being out late							
Can't go out	5.6%	9.9%	-4.2%	.01	14.7%	-9.0%	.04
Can be out past 10	27.3%	25.4%	1.8%	.47	24.0%	3.3%	.48
Likes parents	78.5%	82.2%	-3.8%	.02	88.5%	-10.0%	.00
Parents get along	69.6%	74.0%	-4.4%	.08	78.5%	-8.9%	.01
Small family							
4 dependents or less	76.3%	72.0%	4.3%	.15	74.7%	1.6%	.80
2 dependents or less	14.9%	11.0%	3.9%	.01	8.1%	6.8%	.00
Has own bedroom	82.3%	80.7%	1.7%	.49	88.0%	-5.7%	.07
Gets along w/ all family	70.8%	69.7%	1.1%	.68	79.4%	-8.6%	.00
Ran away	4.8%	2.6%	2.2%	.00	5.9%	-1.2%	.70
Has emotional problem	3.3%	2.1%	1.2%	.08	4.8%	-1.5%	.65
Has learning problem	6.2%	5.2%	1.0%	.52	8.8%	-2.6%	.46
Welfare	1.4%	0.7%	0.7%	.04	0.04	1.3%	.00
Father lost job	6.1%	5.5%	0.6%	.67	2.3%	3.8%	.00
Home alone usually							
< 1 hour	44.3%	47.1%	-2.8%	.35	47.5%	-3.3%	.43
> 3 hours	13.3%	12.3%	1.0%	.64	7.9%	5.4%	.01

Note: All data are weighted and account for sample design.

[1] Differences may appear imprecise due to rounding.

CHAPTER 6

INDIVIDUAL, FAMILY, AND PEER INFLUENCES

Due to the emergence of original theories (e.g., attachment theory), and the fine-tuning of existing theories (e.g., social interaction theory), the number of variables identified in research as influences on student outcomes has increased substantially over time,[42] resulting in a list larger than can be examined in any single study. The purpose of the present chapter is to undertake antecedent analyses of distinct groups of individual, family, and peer factors, respectively, to ascertain which independent variables prevail in importance. In the process, coefficients will be obtained through which indices can be created that represent the predictors comprehensively, but manageably, in models of subsequent chapters. Given the particularly large number of family variables, they are

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[42] To the contemporary eye, research on the determinants of adolescent development may appear static, but this literature has shown interesting evolution over time. Change is seen particularly in the emergence of attachment theory (Bretherton 1992) and social learning theory (Grusec 1992). The authors show how the theories were initially deemed controversial (departing from the inherited Freudian wisdom, or other preceding theory), but over time have come to represent the prevailing thinking.

The proliferation of new factors (expansion) seems more commonplace than do concomitant efforts at multivariate tests and theoretical narrowing. As noted earlier, Farrington (1993) argues strongly for the need to examine alternative possible factors simultaneously (7). Similarly, Vold, Bernard, and Snipes (1998) discuss the need for research with an empiricist emphasis on locating sources of independent variation (324, 335). The proliferation of determinants can be seen in such research as Akers (1997), Hirschi (1994), Shoemaker (1996), Vold, Bernard, and Snipes (1998), and Zhang (1993). Research providing interesting complimentary analysis and background includes Hanushek (1972), Bridge (1979), Bretherton (1992), and Grusec (1992).

examined in two distinct groups: socioeconomic influences and family processes. In the analyses, behavior is defined positively as *adherence* to rules. Thus, a negative-signed influence in results will signify a relationship that is negative in the colloquial sense.

Individual Determinants

In models assessing the influence of individual traits, the proportion of variance explained (table 5)[43] is small but meaningful (from R^2= .06 to R^2=.07). The variables *male*, *nonwhite*, *learning problem*, *emotional problem*, *strain* and *handicap* are each negative as expected. Also consonant with expectation, *religious person* influences conduct favorably. In contrast to the prevailing expectation in studies of academic achievement, *race* is less influential than *gender*.

Family Socioeconomic Determinants

In the analyses investigating the relationships of socioeconomic predictors with student conduct (table 6) the proportion of variance explained (R^2=.03 to R^2=.06) is less than was found in the individual traits models. The results conform to expectations with few exceptions. The variables *parents have good marriage*, *simple socioeconomic status*, and *parents' job status* are each positive as expected. The variables *family member used drugs, urban, number of dependents*, *mother lost job*, *father lost job, went on welfare*, *mother died,* and *father died*, display negative influences.

The factors with the greatest apparent influence include *family member used drugs* and *parent died*. The result for *family member used drugs* is revealing as an

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[43] Each table displays the results of four models: 10th and 12th grade models of less serious behavior, and 10th and 12th grade models of more serious behavior. The columns marked "Coef." contain the coefficients (these indicate the relationship between each of the independent variables and behavior). The columns marked "P>|t|" indicate the statistical significance of each of the coefficients (levels below .05 are traditionally considered significant).

affirmation of aspects of family life that (in light of social learning theory) would seem likely to have an impact on student outcomes. Several other variables are not significant, namely, *family structure change*, *relative socioeconomic status*, and *stayed on welfare*.

Findings for some variables are contrary to expectation. *Family income* and *student has own room* are negative not positive, and *place to study* displays a mixed influence. Furthermore, the inconsistent influences of father traits (*father lost job*; *father died*) seem conspicuous in light of parallel mother qualities that are relatively consistent and highly influential.[44] Examination of other predictors reveals that *suburban* is negative, and to a degree no less than *urban* (*rural* is the reference group). *Urban* is negative as expected, but its influence seems isolated to less serious behavior. And finally, *parent Catholic* is negative.

Family Processes

Models assessing the influence of family processes (table 6) include such qualities as the parent-student relationship, family communication, supervision, family rules, and parent knowing their child's friend's family. In these analyses, the proportion of variance explained (R^2=.06 to R^2=.11) is greater than was explained by socioeconomic determinants.

As was expected, *parents understand student*, *parents treat fairly*, *parents trust student, parent knows parents, family activities together*, *family discusses things*, *student knows why to obey, rule about TV programs,* and *parent monitors activities* are each significant and positive. The variables *family conflict, student dislikes parent, getting*

[44] Muted influences of fathers relative to mothers may be tenable to some degree, in light of the fact that many students live apart from their fathers.

away important, *student ran away*, *time home alone*, *home alone one week, time watching TV weekdays,* and *can stay out late* are negative. The predictors with the greatest relationships with behavior include *getting away important* (β= -.21), and *student ran away* (β= -.63). Overall, the findings suggest that a home most beneficial to student conduct is one characterized by a variety of desirable traits.

For two indicators characterizing home rules, the results are not as expected. *Rule about homework,* and *rule about TV hours* are negative not positive.[45] However, other conceptually similar variables *(rule about TV programs* and *time watching TV weekdays*) display the expected influences. For some variables, findings across grade levels are not the same. For example, *getting away important* displays larger coefficients in 10th grade than in 12th grade.

Peer Determinants

In models assessing peer influences (table 8),[46] the explained variance (R^2=.05 to R^2=.15) is large relative to many models estimated to this point. Most predictors conform to expectations. The variables *percent Caucasian*, *school mean religiosity, school mean family influences*, *seen as good student*, and *peer acceptance* are each positive as expected. The indicators of *hanging out* with friends and *driving around* are negative.

Several variables, however, are not consistently related to behavior, including

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[45] It is tempting to speculate about reverse causality; that is, that the adoption of explicit formal rules signifies a reaction by the parent to troubling teen behavior.

[46] Patterson, DeBaryshe, and Ramsey (1989) suggested that the route to delinquency is marked by a reliable developmental sequence of experiences involving ineffective parenting (and socioeconomic variables that they call contextual) leading to conduct disorders. These lead to academic failure and peer rejection, which in turn lead to increased risk for depressed mood and involvement in a deviant peer group.

school mean religiosity,[47] *seen as good student*, *percent Caucasian*, and *percent free lunch*. Moreover, *seen as popular*, and *seen as athletic* have negative instead of positive signs (perhaps suggesting reverse causality or omitted variables). Among the most notable findings is the consistent and strong influence of individual-level peer influences, particularly spending time hanging out or driving around. By contrast, the school-level indicators tend to be weakly related to behavior.

Conclusion

The number of variables identified in research as influences on student outcomes has increased substantially over time. This chapter examines distinct groups of individual, family, and peer factors, respectively, to ascertain which independent variables prevail in importance. Although key inferences regarding influences on behavior are best left to models of subsequent chapters (that are more all-encompassing), a few preliminary findings from this chapter are worth highlighting.

1. In contrast to the prevailing expectation in studies of academic achievement, *race* is less influential than *gender*.

2. While most socioeconomic indicators are positive influences, *family income* and *student has own room* appear negatively related to student conduct.[48]

3. The simultaneous inclusion of many different family processes in regression analyses

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[47] Much research advancing the link between religiosity and deviance is correlational, and whether religiosity displays a unique influence of delinquency beyond other family factors is subject to ongoing investigation (Elifson, Peterson, and Hadaway 1983; Benda 1997).

[48] The finding may appear puzzling but is not useless. Shoemaker (1996), and Vold, Bernard, and Snipes (1998) point out that the influence of poverty on deviance tends to be weak and inconsistent. DiPrete and Peng (1981) find that students from middle income families generally have lower rates of misbehavior than do students from low- and high-income families. In the conclusion of this study, speculative potential explanations for these findings are considered.

does not lead to disconfirmation of many predictors. Instead, it appears many family processes are independently related to behavior.

4. Among peer factors, traits measured at the individual level tend to be most consistently related to behavior. Collective student-body traits tend to be weakly related to conduct.

5. Living in a *suburban* area is a negative determinant of behavior, and to a degree no less than is *urban* (*rural* is the reference group).

Table 5. Individual Traits Regressed on Student Behavior

	10th Grade				12th Grade			
	Less Serious		More Serious		Less Serious		More Serious	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
Male	-.23	.00	-.18	.00	-.34	.00	-.34	.00
Very religious person	.29	.00	.48	.00	.14	.00	.28	.00
Somewhat religious person	.17	.00	.27	.00	.08	.00	.13	.00
Nonwhite	-.16	.00	.00	.79	-.11	.00	-.06	.00
Learning problem	-.08	.02	-.03	.30	-.03	.35	.00	.91
Emotional problem	-.23	.00	-.37	.00	-.03	.55	-.13	.01
Strain	-.15	.00	-.11	.00	-.13	.00	-.10	.00
Handicap (tchr. report)	-.30	.00	-.25	.00	-.20	.00	-.11	.00
Constant	.03	.06	-.11	.00	.14	.00	.07	.00
Observations	17109		17209		16108		15742	
R-squared	.07		.06		.06		.06	

Table 6. Family Socioeconomic Traits Regressed on Student Behavior

	10th Grade				12th Grade			
	Less Serious		More Serious		Less Serious		More Serious	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
Urban	-.10	.00	-.01	.64	-.08	.00	.00	.91
Suburban	-.14	.00	-.04	.04	-.09	.00	-.03	.14
Central	.02	.28	-.03	.16	.09	.00	-.01	.81
South	-.09	.00	.02	.29	-.02	.43	.05	.03
West	-.14	.00	-.10	.00	-.09	.00	-.16	.00
Parent Catholic	-.05	.00	-.05	.00	-.06	.00	-.07	.00
Parents have good marriage	.12	.00	.15	.00	.05	.00	.05	.00
Family structure change	-.01	.09	.00	.75	.01	.38	.00	.78
Simple socioeconomic status	.08	.00	.08	.00	.02	.19	.05	.00
Place to study	.05	.00	.02	.29	.00	.93	-.06	.00
Student has own room	-.08	.00	-.13	.00	-.03	.21	-.08	.00
Number of dependents	-.02	.00	.01	.12	-.01	.19	-.01	.34
Income	-.04	.00	-.05	.00	-.05	.00	-.04	.00
Relative socioeconomic status	.01	.54	.00	.89	.02	.15	.00	.85
Went on welfare	-.20	.01	-.37	.00	-.01	.93	.07	.40
Stayed on welfare	.06	.42	.09	.22	.08	.27	.07	.39
Mother lost job	-.11	.01	-.16	.00	-.13	.00	-.05	.19
Father lost job	-.05	.14	-.06	.06	-.09	.01	-.05	.19
Mother died (10th)	-.37	.00	-.56	.00	. . .	. . .	. . .	. . .
Father died (10th)	-.12	.08	-.21	.00	. . .	. . .	. . .	. . .
Parent died (12th)					-.23	.00	-.50	.00
Parents' job status	.05	.00	.03	.00	.04	.00	.02	.07
Family member used drugs (12th)	. . .	. . .	. . .	. . .	-.30	.00	-.59	.00
Constant	.28	.00	.14	.00	.19	.00	.25	.00
Observations	17109		17209		16108		15742	
R-squared	.04		.04		.03		.06	

Table 7. Family Processes Regressed on Student Behavior

	10th Grade				12th Grade			
	Less Serious		More Serious		Less Serious		More Serious	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
Family conflict	-.02	.01	-.04	.00	.00	.98	-.02	.12
Parents understand student	.05	.00	.04	.00	.05	.00	.00	.63
Parents treat fairly	.04	.00	.03	.00	.00	.63	.00	.76
Student dislikes parent	-.01	.26	-.04	.00	.00	.84	-.01	.19
Parents trust student								
10th	.19	.00	.14	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.10	.00	.12	.00
Getting away important								
Somewhat	-.06	.00	-.06	.00	.00	.83	.00	.95
Very	-.14	.00	-.21	.00	.01	.56	-.08	.00
Student ran away								
10th	-.26	.00	-.73	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	-.26	.00	-.63	.00
Parent knows friends								
10th	-.01	.61	-.14	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	-.08	.04	-.07	.09
Parent knows parents	.05	.00	.02	.04	.05	.00	.02	.13
Family activities together	.07	.00	.04	.00	.00	.64	.03	.00
Family discusses things								
10th	.06	.00	.04	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.11	.00	.07	.00
Doesn't know why to obey	.08	.00	.06	.00	.11	.00	.09	.00
Time home alone	-.05	.00	-.07	.00	-.04	.00	-.05	.00
Home alone one week (12th)	. . .	. . .	. . .	. . .	-.16	.00	-.17	.00
Rule about homework								
10th	-.09	.00	-.09	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	-.01	.63	-.03	.17
Rule about tv programs	.04	.01	.08	.00	.02	.30	.03	.07
Rule about hours tv	-.06	.00	.02	.34	-.07	.00	-.04	.03
Time TV weekdays	-.03	.00	.01	.29	-.03	.00	-.02	.04
Can stay out late	-.09	.00	-.10	.00	-.06	.00	-.08	.00
Parent monitors activities	.04	.00	.05	.00	.03	.00	.03	.00
Constant	-.07	.10	.08	.04	.08	.08	.13	.01
Observations	17109		17209		16108		15742	
R-squared	.09		.11		.06		.08	

Table 8. Peer Factors Regressed on Student Behavior

	10th Grade				12th Grade			
	Less Serious		More Serious		Less Serious		More Serious	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
Percent Caucasian	.05	.00	.01	.14	.04	.00	.01	.18
Percent single parent	-.02	.03	.01	.49	-.01	.19	.02	.01
Percent free lunch	.00	.68	-.01	.48	.02	.00	-.01	.21
School mean religiosity	.00	.86	.06	.00	.00	.61	.03	.00
School mean family influences								
10th	.08	.00	.06	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.08	.00	.10	.00
Seen as popular	-.04	.00	-.10	.00	-.04	.00	-.07	.00
Seen as good student	.22	.00	.20	.00	.16	.00	.14	.00
Seen as athletic	-.01	.31	-.02	.01	-.04	.00	-.07	.00
Seen as important	.02	.06	.00	.69	.02	.04	-.01	.49
Hang out daily	-.07	.01	-.03	.17	-.01	.81	-.02	.52
Hang out once a week	-.13	.00	-.16	.00	-.09	.00	-.12	.00
Hang out twice a week	-.40	.00	-.48	.00	-.21	.00	-.33	.00
Drive around daily	-.06	.00	-.08	.00	-.05	.03	-.05	.03
Drive around once a week	-.09	.00	-.17	.00	-.07	.00	-.10	.00
Drive around twice a week	-.17	.00	-.35	.00	-.09	.00	-.14	.00
Peer acceptance	.07	.00	.08	.00	.05	.00	.04	.00
Constant	.22	.00	.30	.00	.12	.00	.18	.00
Observations	17109		17209		16108		15742	
R-squared	.11		.15		.05		.07	

CHAPTER 7

SCHOOL TYPE AND STUDENT BEHAVIOR

Preceding analyses (chapter 4) affirm that there are differences in student behavior in public, Catholic, and other private schools. Research (Coleman, Hoffer, and Kilgore 1982a) has posited that these differences are due to characteristics that vary among schools. However, analyses also revealed that families of students attending Catholic and other private schools are characterized by advantages in family traits (chapter 5). In order to identify the influence of school type independent of alternative determinants, this chapter estimates school influences controlling for individual, family and peer factors.

Influences of Type of School Attended

The results (table 9)[49] indicate that attending a Catholic school is associated with favorable behavior, independent of controls, across the four models. The effect sizes, however, are notably *smaller* than found in studies of student achievement.[50] In the

[49] Each table displays the results of four models: 10th and 12th grade models of less serious behavior, and 10th and 12th grade models of more serious behavior. The columns marked "Coef." contain the coefficients. The columns marked "P>|t|" indicate the statistical significance of each of the coefficients.

[50] In Haertel, James, and Levin (1987), which summarizes studies of the influence of school types on academic achievement, coefficients for Catholic schools range from $\beta = .13$ to $\beta = .17$ (117).

analyses that control for prior student conduct (table 10), the results generally affirm the results in the cross-sectional models: school differences between public and Catholic schools remain despite the controls[51] (the Catholic school coefficients average approximately β=.03).

However, in the logistic analyses (appendix 4) that examine each type of conduct independently, Catholic schools appear to exert positive influences on student behavior, but this relationship does not appear for all types of conduct. In some areas, such as use of cocaine, the apparent influence of Catholic schools is negligible, and in a select few instances (e.g., alcohol use; disruption in 12th grade) the coefficients for Catholic schools are negative not positive.

Other private schools, compared to public schools, do not generally appear advantaged in their influence on behavior. Although in the models of change (models controlling for prior behavior) the results *do* display advantages for other private schools, the coefficients in cross-sectional models do not indicate advantaged influences on behavior. Coefficients in 10th grade are clearly negative, signifying unfavorable influences on behavior compared to public schools.

Influences of Individual, Family and Peer Factors

Individual Determinants

The findings indicate that several individual traits influence conduct, but not all to the same degree. Among the factors, the variable *male* has the strongest and most consistent influence. *Strain* (low earnings expectations despite ambitious goals) and

[51] Implications of these findings are discussed in the conclusion of the study.

learning/emotional problems each relate to behavior, but their respective influences are at times small. *Student religiosity*, *handicapped status* and *race* are each related to behavior, but neither of these is related to conduct consistently in all four models.[52]

Family Determinants

The findings affirm the family as a consistent and strong influence on student conduct. Moreover, the results indicate that no single predictor dominates to the exclusion of others. Instead, diverse family traits appear to simultaneously influence conduct. Among the most consistent determinants are those characterizing parent-child relationships. When the parent-child relationships are positive (characterized by attachment, time spent together, and a sense of understanding) the student is much less likely to engage in problem behavior.[53] Communication (e.g., talking to the student regularly) and supervision (e.g., setting limits on going out at night) are also consistently influential. Previous research has posited that a parent knowing the parents of their child's friends may be an important determinant of behavior (Coleman and Hoffer 1987). The results indicate, however, that the influence of this factor is relatively small.

Not all socioeconomic indicators relate to behavior. The most consistently influential type of status is not traditional socioeconomic status (entailing traits such as *parent occupation, education, home items,* and *family size*), but *other socioeconomic*

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[52] Ozorak (1989) notes, "Virtually all research has identified parents as the most important source of religious influence, even into adulthood" (449). In a substantial body of previous delinquency research, the role of religiosity has often appeared quite uncertain (e.g., Elifson, Peterson, and Hadaway 1983; Benda 1997). In the present study, the presence or absence of religiosity in models does little to change the estimates of school influences.

[53] The variable *family relationships* is an index of several family traits (see appendix 2). Chapter 6 found that *running away*, and a desire to *get away* from parents, were family processes with the strongest relationships with behavior.

conditions (e.g., *parent job loss, going on welfare, death of parent*). Moreover, traditional socioeconomic status, when influential, appears *negative*, not positive.[54] The indicator of *relative* socioeconomic status displays a small and inconsistent association with behavior.

Peer Factors

Among peer variables, two in particular show consistent and strong influences: *peer status* (β= .09 to β= .16), and *spending unstructured time with peers* (β= -.07 to β= -.21). *Peer acceptance* (i.e., having friends) is only marginally related to student conduct.[55] Furthermore, as was found in the preceding chapter, *school-level* peer indicators (including mean demographic traits, school-mean family traits, and mean religiosity) fail to meaningfully influence conduct.

Prior Behavior and Prior Achievement

Findings in this chapter inform the long-standing question of whether academic achievement and problem behavior influence each other, or if one predominantly causes the other. In the results, prior academic achievement is not a major determinant of conduct when controlling for prior behavior. This finding is consistent with evidence in Hinshaw (1992), and Patterson, DeBaryshe, and Ramsey (1989). The results seem to raise doubt as to whether raising achievement is a viable way of improving behavior

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[54] Two remarks, somewhat independent of each other, are offered here. First, the seemingly negative relevance of *traditional socioeconomic status* may be surprising, but in research on deviance and crime (Vold, Bernard, and Snipes 1998) the role of poverty is reported to be highly uncertain. Second, in ancillary analyses of *academic achievement* (instead of behavior), traditional socioeconomic status had the *expected positive* influence on learning.

[55] This finding may be surprising, but it need not be interpreted to disconfirm the importance of peer acceptance and rejection: It is possible that rejection itself leads to associating with deviant peers.

(however, this issue should be subject to further investigation that measures achievement in alternative ways).

Conclusion

The findings show positive net Catholic school influences on behavior relative to public schools. However, Catholic school advantages are curiously not found for all behaviors. Whereas in some areas (e.g., cutting class), Catholic school coefficients are positive and large, in other areas, the coefficients are negative or zero. The influence of *other private* schools was mixed, suggesting little or no general advantage compared to public schools.

The family is strongly and clearly affirmed as the most important influence on student behavior. Moreover, the findings indicate that family traits that influence behavior are many. In some instances, variables that are conceptually similar nonetheless show *independent* significant influences on behavior. Furthermore, in a set of surprising findings, *socioeconomic status* and *income* display negative relationships with student conduct.[56] The results for peer effects affirm the influence of some predictors but not others. Two determinants, *peer status* and *spending time with peers,* are dominant in predictive importance. As was found in chapter 6, peer indicators measured at the level of the individual student tend to significantly influence behavior, but indicators of collective student-body traits tend to be weakly related to conduct.

[56] Possible explanations for these findings are considered in the conclusion of this study.

Table 9. Regression Models of High School Student Behavior

	10th Grade				12th Grade			
	Less Serious		More Serious		Less Serious		More Serious	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
Male	-.19	.00	-.14	.00	-.27	.00	-.28	.00
Very religious person	.12	.00	.25	.00	.00	.97	.12	.00
Somewhat religious	.07	.00	.13	.00	.00	.87	.03	.07
Nonwhite	-.07	.00	.04	.07	-.08	.00	-.06	.01
Learn/emotional problem	-.02	.03	-.04	.00	.00	.68	-.01	.32
Strain								
10th	-.08	.00	-.02	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	-.10	.00	-.06	.00
Handicap (tchr. report)	-.17	.00	-.12	.00	-.14	.00	-.05	.15
Urban	-.08	.00	.01	.76	-.07	.00	.00	.94
Suburban	-.11	.00	-.02	.36	-.07	.00	-.01	.80
Central	.05	.02	.00	.82	.11	.00	.03	.24
South	-.08	.00	.00	.88	-.01	.79	.05	.02
West	-.11	.00	-.09	.00	-.06	.02	-.13	.00
Catholic	-.03	.03	-.05	.00	-.04	.03	-.06	.00
Parents get along								
10th	.04	.00	.06	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.02	.00	.02	.02
Socioeconomic status	-.01	.73	.01	.41	-.04	.01	-.04	.01
Relative SES								
10th	.03	.03	.01	.49	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.02	.11	.04	.00
Other SES conditions								
10th	.04	.00	.06	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.07	.00	.16	.00
Income	-.03	.01	-.04	.00	-.03	.01	-.02	.04
Family relationships								
10th	.11	.00	.15	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.09	.00	.08	.00

Table 9–*Continued*

	10th Grade				12th Grade			
	Less Serious		More Serious		Less Serious		More Serious	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
Communication								
10th	.05	.00	.02	.04	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.09	.00	.07	.00
Supervision/rules								
10th	.07	.00	.08	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.04	.00	.05	.00
Parent knows parents								
10th	.03	.01	.02	.04	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.03	.00	.01	.14
Percent Caucasian	.01	.33	.01	.29	.00	.83	.00	.61
Percent single parent	-.01	.06	.00	.51	-.01	.24	.02	.01
Percent free lunch	.00	.83	-.01	.15	.02	.08	-.01	.24
School mean religiosity	-.01	.15	.01	.13	.00	.93	.00	.73
School mean family influences								
10th	.02	.05	.03	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.00	.63	.03	.01
Peer status								
10th	.16	.00	.16	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.11	.00	.09	.00
Time spent with peers								
10th	-.14	.00	-.21	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	-.07	.00	-.12	.00
Peer acceptance	.01	.05	.02	.00	.01	.15	.00	.92
Other Private School	-.04	.26	-.14	.00	.02	.55	.01	.69
Catholic School	.08	.02	.09	.01	.09	.02	.10	.00
Constant	.16	.00	-.01	.82	.20	.00	.13	.00
Observations	17109		17209		16108		15742	
R-squared	.17		.20		.13		.15	

Table 10. Relationship Between School Attended and Student Behavior (Standardized), with and without Controls for Prior Student Outcomes

	Without Prior Outcomes Added				With Prior Outcomes Added			
	Catholic		Other Private		Catholic		Other Private	
Model	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|
10th Less Serious	.08	.02	-.04	.26	.03	.33	-.02	.59
10th More Serious	.09	.01	-.14	.00	-	-	-	-
12th Less Serious	.09	.02	.02	.55	.03	.36	.05	.13
12th More Serious	.10	.00	.01	.69	.04	.29	.03	.32

CHAPTER 8

DESCRIPTIVE DIFFERENCES IN UNDERLYING SCHOOL TRAITS

Analyses in chapter 5 identify relationships between school type and student behavior independent of diverse individual, family, and peer influences. This chapter compares the prevalence of various school traits, including disciplinary policies, in the different school types. The comparisons may help identify differences in the school types potentially important to their effectiveness in promoting appropriate student conduct. The findings will also suggest the extent to which the investigated factors have the potential to explain the apparent influences of the type of school attended on behavior. The results (table 11) indicate, for each school type, the proportion of schools, teachers, or students characterized by the given trait.[57] The factors investigated are the following:

- Parents notified when student is sent to principal's office for disruptive behavior
- Teacher policies/practices regarding homework
- Disciplinary policies regarding classroom disturbance
- Disciplinary policies regarding skipping classes

[57] Columns 1, 2, and 5 display the proportions of public, Catholic, and other private schools, respectively, characterized by the given trait. Column 3 indicates the differences between public schools and Catholic schools. Column 6 indicates the differences between public and other private schools.

- Disciplinary policies regarding causing injury to another student
- Disciplinary policies regarding use of alcohol at school
- Disciplinary policies regarding use of drugs at school
- Entire school enrollment
- Class size
- Teacher major in education
- Teacher certified
- Achievement level of class versus average (high, average, or low)
- Difficulty level of class for student
- Perceived fairness of school discipline (student-reported)
- Relevance of mathematics (designation that math is useful)
- Relevance of English (designation that English is useful)

Comparison of Public and Catholic Schools

School and Class Size

The data indicate considerable differences in the sizes of public and Catholic schools. Over half of all public schools have enrollments of greater than 1000 students, whereas only 16% of Catholic schools exceed that size. By contrast, class sizes scarcely differ, with public and Catholic schools averaging 26 and 27 students per class respectively.

Teacher Major in Education and Teacher Certified

Differences in *teacher major in education* and *teacher certified* are less than expected. Public school teachers are 12 percentage points more likely to be certified (99% versus 87%), and are marginally more likely to have majored in education.

Achievement Level and Difficulty Level

Differences across school types in *class achievement level* (achievement level of class as rated by teacher), and *class difficulty level* are marginal. The proportions of students residing in low, high, average, or varying achievement levels differ by just a few percentage points (or less). It is notable that, regardless of school type attended, the

proportion of students attending classes judged *too difficult* is roughly comparable to the proportion judged *not difficult enough*. This evidence does not support the notion that public schools are academically more lax than Catholic schools.

Curriculum Relevance

The findings for curriculum relevance show small differences. Students in public schools are approximately four percentage points more likely to report that *math is useful* to their future. Students in Catholic schools, however, are more likely to report that *English is useful* to their future.

Disciplinary Policies Regarding Particular Behaviors

The comparisons of policies regarding cutting, causing disturbances, causing injury, and using alcohol or drugs *do not*, contrary to common perception, support an overall pattern of greater disciplinary strictness in Catholic schools.[58] The typical school disciplinary responses to violations tend to be the same in the different school types. Differences in policies regarding notifying parents of a student's disruptive behavior are neither large nor significant. In both Catholic and public schools, the mode response to *skipping* and *causing disruptions* is detention. And in both school types, the mode response to *causing injury*, *alcohol use*, and *drug use* is out-of-school suspension.

Public schools, however, are decidedly more likely than Catholic schools to report using out-of-school suspension for student violations. For *causing injury*, the percentage point difference is approximately 22% (89% of public schools versus 67% of Catholic schools). For *drug use*, the percentage point difference is fully 48%, with only

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[58] This finding stands in contrast to Coleman, Hoffer, and Kilgore (1982a).

about a third of Catholic schools indicating out-of-school suspension as the designated punishment.[59]

Catholic schools are more likely to report employing expulsion, but the differences are not large. For using alcohol, Catholic schools are nine percentage points more likely to report that a student will be expelled; and the gap is similar for drug use. The overwhelming majority of *both* public and Catholic schools report that *suspension, not expulsion*, is the typical response to serious violations.

Comparison of Public and Other Private Schools

In contrast to the comparisons between public and Catholic schools, comparisons between other private schools and public schools show more frequent differences. Differences are found in the comparison of other private and public schools in factors that do not differ in the comparison of public and Catholic schools. This is seen in the traits *teacher majoring in education*, *class achievement level (class average)*, *class difficulty level (rating of class difficulty for each student)*, *disciplinary fairness*, and *use of expulsions*. The greatest contrast in policies is found in the use of expulsions. A *minority* of public and Catholic schools, but a *majority* of other private schools, report use of expulsion for serious violations like *causing injury* and *substance use*.

Differences in the use of out-of-school suspension resist easy simplification. For *skipping class*, out-of-school suspension is used substantially more often in other private schools than in either of the other school types. For *disturbing class* or *injuring students*, it is used at rates comparable to public and Catholic schools. For alcohol and substance

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[59] As discussed in the conclusion of this study, it seems possible that these policies may be a response to the somewhat more troubling behavior in public schools.

use, it is employed considerably less frequently.

Conclusion

Overall, the comparison of public and Catholic schools shows more similarities than differences. The perceptions that Catholic schools enforce discipline more strictly than do public schools is not supported.[60] Differences in *teacher majoring in education*, *class difficulty level*, and *disciplinary fairness* are small or negligible. Where differences *are* identified, the largest differences are found in school size, teacher certification, and rates of reliance on in-school and out-of-school suspension. In contrast to the limited differences found in the comparisons of public and Catholic schools, other private schools frequently differ from public and Catholic schools, most notably in their reliance on expulsions for serious violations.

[60] There may be benefit in exploring school factors beyond the scope of this study, such as the religious character of sectarian schools, as is noted in the conclusion of this study.

Table 11. School Attributes in Public, Catholic, and Other Private Schools

	Public	Cath	Public - Cath Diff.[1]	P>|t|	O.P.	Public - O.P. Diff.	P>|t|
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Entire school enrollment > 1000	58.9%	16.6%	42.2%	.00	1.5%	57.4%	.00
Class size (mean)	26.0	27.4	-1.4	.04	18.1	7.9	.00
Teacher major in education	11.6%	9.3%	2.2%	.31	3.0%	8.5%	.00
Teacher certified	99.7%	87.2%	12.4%	.00	40.4%	59.2%	.00
Achievement level of class[2]							
Low	13.8%	12.2%	1.6%	.46	5.4%	8.4%	.00
High	20.3%	20.1%	0.1%	.95	16.1%	4.1%	.09
Varies	9.5%	6.6%	2.8%	.06	13.5%	4.0%	.35
Difficulty level of class							
Too difficult	6.7%	5.1%	1.5%	.12	2.9%	3.7%	.00
Not challenging enough	6.6%	6.5%	0.0%	.97	4.6%	1.9%	.05
Discipline fairness	6.5%	9.9%	-3.4%	.03	17.9%	-11.4%	.00
Mathematics is useful							
Agree or strongly agree	88.5%	84.0%	4.5%	.05	88.4%	0.1%	.96
English is useful							
Strongly agree	33.1%	37.4%	-4.2%	.17	35.2%	-2.1%	.60

Note: All data are weighted and account for sample design.

[1] Differences may appear imprecise due to rounding.

[2] Achievement levels shown are for grade 10; differences in grade 12 are slightly smaller.

Table 11–*Continued*

	Public	Cath	Public - Cath Diff.[1]	P>|t|	O.P.	Public - O.P. Diff.	P>|t|
Parents notified[2]							
Seldom	2.0%	1.1%	0.9%	.21	2.3%	-0.2%	.83
Sometimes	20.5%	22.9%	-2.4%	.58	25.7%	-5.1%	.31
Usually	54.7%	47.7%	7.0%	.13	51.7%	3.0%	.65
Always	22.4%	28.1%	-5.7%	.20	20.2%	2.1%	.72
Practices regarding h.w.							
Records all homework	80.9%	75.9%	4.9%	.10	85.2%	-4.3%	.27
Returns all homework	62.2%	59.6%	2.5%	.47	73.5%	-11.3%	.01
Discusses all homework	63.8%	69.6%	-5.7%	.12	67.7%	-3.9%	.38
Discipline for skipping							
Detention	66.9%	69.9%	-3.0%	.51	66.3%	0.5%	.93
In-school suspension	66.2%	23.5%	42.7%	.00	20.1%	46.1%	.00
Out-of-school susp.	12.6%	9.0%	3.5%	.24	23.6%	-10.9%	.05
Transfer	0.6%	0.1%	0.5%	.73	0.4%	0.2%	.73
Expulsion	1.0%	1.2%	0.1%	.90	6.6%	-5.6%	.17
Discipline for class disturbance							
Detention	74.4%	89.3%	-14.9%	.00	82.7%	-8.2%	.12
In-school suspension	35.6%	19.0%	16.5%	.00	25.8%	9.7%	.08
Out-of-school susp.	20.3%	10.3%	10.0%	.00	17.7%	2.5%	.60
Transfer	0.9%	1.2%	-0.3%	.79	0.0%	0.9%	.00
Expulsion	2.4%	2.6%	-0.1%	.91	4.6%	-2.2%	.24

Note: All data are weighted and account for sample design.

[1] Differences may appear imprecise due to rounding.

[2] Parents notified when student is sent to principal's office for disruptive behavior.

Table 11–*Continued*

	Public	Cath	Public - Cath Diff.[1]	P>|t|	O.P.	Public - O.P. Diff.	P>|t|
Discipline for injury to student							
Detention	1.2%	7.6%	-6.3%	.00	7.5%	-6.2%	.05
In-school suspension	12.9%	20.4%	-7.4%	.07	16.1%	-3.1%	.60
Out-of-school suspension	89.2%	67.3%	21.8%	.00	70.6%	18.5%	.00
Transfer	5.0%	2.4%	2.5%	.14	0.9%	4.1%	.00
Expulsion	41.7%	47.5%	-5.7%	.23	58.8%	-17.1%	.00
Discipline for alcohol use							
In-school suspension	8.4%	14.3%	-5.8%	.09	5.4%	3.0%	.14
Out-of-school suspension	86.0%	67.8%	18.2%	.00	27.1%	58.9%	.00
Transfer	5.3%	7.1%	-1.8%	.50	0.8%	4.4%	.00
Expulsion	16.9%	26.1%	-9.1%	.06	79.7%	-62.7%	.00
Discipline for drug use							
In-school suspension	6.6%	9.4%	-2.8%	.36	4.6%	1.9%	.31
Out-of-school suspension	81.6%	32.8%	48.7%	.00	22.4%	59.1%	.00
Transfer	5.8%	8.9%	-3.1%	.32	0.8%	4.9%	.00
Expulsion	25.1%	35.4%	-10.3%	.04	83.6%	-58.5%	.00

Note: All data are weighted and account for sample design.

[1] Differences may appear imprecise due to rounding.

CHAPTER 9

RELATIONSHIP OF UNDERLYING SCHOOL FACTORS TO STUDENT BEHAVIOR

The previous chapter indicated that differences in school traits across the three school types were often small. This chapter estimates the *influences* of school factors on student behavior, factors that may help explain the apparent influence of school type on conduct. Moreover, awareness of school characteristics that influence behavior may lead to avenues of more widespread educational reform and improvement. Ten general dimensions of school organization, and six sets of behavior-specific disciplinary policies will be investigated.[61] Results are displayed in tables 12 and 13.

Disciplinary Policies Regarding Particular Behaviors

Most disciplinary policies do not show significant and meaningful relationships with behavior.[62] Not unlike what was found for inputs (e.g., *education major*) the

[61] Descriptions of the school factors are provided in appendix 3.

[62] Possible explanations for this finding are taken up in the study conclusion. The following remarks, each somewhat independent of each other, are also offered. First, although the findings may be surprising, the failure of disciplinary policies to influence behavior is not isolated to this study. Pestello (1989) reports that the swiftness, certainty, and severity of disciplinary penalties do not lead to increased order. Second, the lack of consistent relationships between policies and behavior in the present study was not an artifact of the aggregation of different behaviors. The findings held also in logistic models (in which each act was investigated independently). Finally, multicollinearity (as indicated by variance inflation factors) was below levels considered problematic (Kennedy 1998).

coefficients for many disciplinary policies (e.g., *transferring a student for disrupting class*, and *in-school suspension for alcohol use*) carry negative signs.

Other School Traits

Disciplinary fairness displays significant influences in all four models,[63] a finding consistent with research addressing academic outcomes (Purkey and Smith 1983; Bryk, Lee, and Smith 1990). *Class achievement level* (teacher rating of whether the class achievement level is low, average, or high), too, is consistently related with behavior. Membership in a *low ability class* is associated with substantially worse conduct, and a *high ability class*, with better conduct (*average ability* is the reference group). *Difficulty level* (which differs from *class achievement level* in that it varies for each student according to the match of the course to their ability) shows a varied, but often strong, influence on behavior. Negative coefficients appear for both *too difficult,* presumably signifying frustration, and *not difficult enough*, perhaps signifying a failure to engage student interest.

Curriculum relevance (reflected in student designations of whether math and English will be useful to their future) appears tenuously related to behavior. The indicator *math is useful* shows small positive influences on behavior. By contrast, the indicator *English is useful* shows no significant relationship with conduct.

The findings suggest that *teacher certification*, *class size*, *school size*, and *teacher*

[63] Fairness as judged *by students* seems to be integral. In ancillary analyses, a *teacher-reported* measure of consistent discipline was included in models. This indicator displayed small influences on conduct.

major in education do not have meaningful influences on student behavior.[64] Influences of *certification* are anomalously negative and never reach significance. *Class size* shows small influences, and the evidence in the different models is contradictory. The coefficients for *education major* appear strong in12th grade, but these too are anomalously negative. Given the findings, these traits may deserve further study.[65]

School Traits as Explanations for the Influence of School Type on Behavior

School traits that *are* related to student conduct (e.g., curriculum relevance, disciplinary fairness, and class difficulty level) do not explain the favorable student behavior in Catholic schools. For other private schools, organizational influences do, to *some* degree, explain school differences in student behavior (in the absence of these influences, other private schools would appear still-worse relative to public schools). But the inclusion of school factors generally gives rise to small or negligible changes in the net school differences in student conduct.

Conclusion

This chapter examines the relationship of school traits to student conduct. The results affirm the influence of some traits but not others. *Class difficulty level*, a school quality not widely examined in past research, is the school factor with the greatest relationship with less serious types of violations. By contrast, *fair discipline*, *curricular relevance (mathematics)*, and *class achievement level* are also consistently related with

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[64] The failure of inputs such as these are not uncommon in studies of academic achievement (e.g., Jencks 1972; Burtless 1996).

[65] Murnane and Levy (1996) suggest that conventional quantitative methods may not be adequate to capture the influence of class size. In connection with school size, qualities such as perceived crowdedness and/or anonymity, not just enrollment size, may merit direct measurement and investigation.

conduct. By contrast, *class size*, *teacher certification*, *education major* and virtually all *policies relating to particular behaviors* show no consistent relationship with behavior. The school traits that *are* related to student conduct do not fundamentally explain the apparent influences of school type on student behavior. Organizational traits to some degree explain private school influences, but the apparent influences of Catholic schools are not explained by the inclusion of the school factors investigated. The essential causal mechanism underlying most differences in conduct across school types is not identifiable in the analyses.

Table 12. Relationship Between School Attended and Student Behavior (Standardized), with and without Underlying Factors Added.

	Without Underlying Factors Added				With Underlying Factors Added			
	Catholic		Other Private		Catholic		Other Private	
Model	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|
10th Less Serious	.08	.02	.00	.26	.06	.09	-.08	.05
10th More Serious	.09	.01	-.08	.00	.11	.01	-.12	.01
12th Less Serious	.09	.02	.00	.55	.06	.09	-.06	.15
12th More Serious	.10	.00	.03	.69	.12	.00	-.02	.63

Table 13. Regression Models of High School Student Behavior with Underlying Factors Added

	10th Grade				12th Grade			
	Less Serious		More Serious		Less Serious		More Serious	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
Male	-.19	.00	-.14	.00	-.28	.00	-.28	.00
Very religious person	.11	.00	.23	.00	-.01	.69	.10	.00
Somewhat religious	.06	.00	.12	.00	-.01	.65	.03	.11
Nonwhite	-.05	.01	.05	.01	-.07	.00	-.04	.05
Learn/emotional problem	-.01	.24	-.03	.00	.01	.46	-.01	.55
Strain								
10th	-.06	.00	-.01	.08	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	-.09	.00	-.05	.00
Handicap (tchr. report)	-.14	.00	-.09	.01	-.12	.00	-.03	.35
Urban	-.06	.02	-.01	.62	-.07	.01	-.02	.40
Suburban	-.09	.00	-.02	.28	-.06	.01	-.01	.78
Central	.05	.02	.00	.91	.11	.00	.01	.77
South	-.07	.00	.00	.93	.00	.98	.05	.04
West	-.09	.00	-.09	.00	-.06	.03	-.15	.00
Catholic	-.03	.02	-.06	.00	-.04	.01	-.06	.00
Parents get along								
10th	.04	.00	.05	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.02	.01	.02	.05
Socioeconomic status	-.01	.63	.00	.98	-.04	.01	-.04	.00
Relative SES								
10th	.02	.18	.01	.60	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.02	.17	.04	.00
Other SES conditions								
10th	.04	.00	.06	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.07	.00	.15	.00
Income	-.03	.00	-.04	.00	-.03	.01	-.02	.03

Table 13–*Continued*

	10th Grade				12th Grade			
	Less Serious		More Serious		Less Serious		More Serious	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
Family relationships								
10th	.10	.00	.14	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.08	.00	.08	.00
Communication								
10th	.04	.00	.00	.56	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.09	.00	.06	.00
Supervision/rules								
10th	.07	.00	.07	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.03	.00	.04	.00
Parent knows parents								
10th	.02	.04	.02	.08	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.03	.00	.01	.31
Percent Caucasian	.01	.36	.02	.10	.00	.73	-.01	.58
Percent single parent	-.01	.20	.00	.53	-.01	.47	.02	.01
Percent free lunch	.00	.99	-.01	.18	.01	.15	-.01	.11
School mean religiosity	-.01	.12	.01	.17	.00	.99	.00	.72
School mean family influences								
10th	.02	.10	.02	.02	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.00	.82	.02	.03
Peer status								
10th	.14	.00	.13	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.10	.00	.07	.00
Time spent with peers								
10th	-.12	.00	-.20	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	-.06	.00	-.11	.00
Peer acceptance	.01	.37	.02	.03	.00	.56	-.01	.38
School size	-.03	.00	.00	.69	-.01	.14	.01	.41
Class size	.01	.44	.02	.01	-.02	.00	-.01	.42
Teacher major in educ.	.02	.38	.00	.91	-.11	.00	-.08	.00
Teacher certified	-.02	.69	-.03	.46	-.02	.72	-.01	.89

Table 13–*Continued*

	10th Grade				12th Grade			
	Less Serious		More Serious		Less Serious		More Serious	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
Class achievement level (10th)								
Low	-.17	.00	-.15	.00	. . .	. . .	. . .	. . .
High	.13	.00	.14	.00	. . .	. . .	. . .	. . .
Varies	-.04	.06	-.05	.02	. . .	. . .	. . .	. . .
Class achievement level (12th)								
Low		. . .	. . .	. . .	-.15	.00	-.07	.00
High		. . .	. . .	. . .	.03	.08	.08	.00
Varies		. . .	. . .	. . .	-.02	.51	-.03	.26
Difficulty level of class (10th)								
Too difficult	-.25	.00	.00	.90	. . .	. . .	. . .	. . .
Not difficult enough	.07	.01	-.01	.64	. . .	. . .	. . .	. . .
Difficulty level of class (12th)								
Too difficult	. . .	. . .	. . .	. . .	-.22	.00	-.07	.01
Not difficult enough	. . .	. . .	. . .	. . .	-.06	.05	-.07	.03
Math is useful	.04	.00	.02	.00	.02	.03	.01	.13
English is useful	.00	.86	.00	.85	.02	.05	.00	.84
Fair discipline								
10th	.09	.00	.09	.00	. . .	. . .	. . .	. . .
12th	. . .	. . .	. . .	. . .	.09	.00	.11	.00
Parents notified								
Usually	-.06	.00	-.03	.12	-.03	.14	.00	.84
Always	.00	.97	.00	.91	-.01	.80	-.01	.51
Teacher records all h.w.	-.02	.42	. . .	. . .	-.02	.36	. . .	. . .
Teacher returns all h.w.	-.02	.14	. . .	. . .	-.05	.01	. . .	
Teacher discusses all h.w.	.06	.00	. . .	. . .	.02	.32	. . .	. . .
Detention for skipping	. . .	. . .	-.03	.19	. . .	. . .	-.02	.27
In-susp. for skipping	. . .	. . .	.00	.92	. . .	. . .	-.02	.46
Out-susp. for skipping	. . .	. . .	-.04	.09	. . .	. . .	-.04	.11
Transfer for skipping	. . .	. . .	.03	.76	. . .	. . .	.00	.99
Expulsion for skipping	. . .	. . .	.00	.10	. . .	. . .	.00	.95

Table 13–*Continued*

	10th Grade				12th Grade			
	Less Serious		More Serious		Less Serious		More Serious	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
Detention for disruption	. . .	. . .	.00	.89	. . .	. . .	.01	.53
In-susp. for disruption	. . .	. . .	.03	.07	. . .	. . .	.04	.07
Out-susp. for disruption	. . .	. . .	.03	.19	. . .	. . .	.01	.76
Transfer for disruption	. . .	. . .	-.19	.01	. . .	. . .	-.14	.08
Expulsion for disruption	. . .	. . .	-.01	.81	. . .	. . .	-.01	.84
Detention for injury	. . .	. . .	.00	.95	. . .	. . .	.03	.54
In-suspension for injury	. . .	. . .	.04	.14	. . .	. . .	.05	.04
Out-susp for injury	. . .	. . .	-.02	.37	. . .	. . .	-.01	.68
Transfer for injury	. . .	. . .	.09	.02	. . .	. . .	.04	.36
Expulsion for injury	. . .	. . .	-.01	.62	. . .	. . .	.00	.81
In-suspension for alcohol	. . .	. . .	-.04	.37	. . .	. . .	-.13	.01
Out-susp. for alcohol	. . .	. . .	.01	.79	. . .	. . .	-.02	.70
Transfer for alcohol	. . .	. . .	-.05	.42	. . .	. . .	-.01	.85
Expulsion for alcohol	. . .	. . .	.02	.54	. . .	. . .	.04	.32
In-suspension for drugs	. . .	. . .	.00	.97	. . .	. . .	.14	.01
Out-susp. for drugs	. . .	. . .	-.03	.39	. . .	. . .	.03	.38
Transfer for drugs	. . .	. . .	.03	.63	. . .	. . .	-.02	.72
Expulsion for drugs	. . .	. . .	-.04	.24	. . .	. . .	-.02	.63
Other Private School	-.08	.05	-.12	.01	-.06	.15	-.02	.63
Catholic School	.06	.09	.11	.01	.06	.09	.12	.00
Constant	.19	.00	.09	.14	.32	.00	.17	.01
Observations	17109		17209		16108		15742	
R-squared	.19		.22		.15		.17	

CHAPTER 10

IMPLICATIONS FOR POLICY AND RESEARCH

The purpose of this study was to explore the relationship between the type of high school a student attends and his or her conduct. This chapter opens with a presentation of central findings and implications for policy and research. The second section enumerates suggestions for future studies, and the final section addresses study limitations.

Central Findings and Implications

Catholic schools appear to exert positive influences on student behavior relative to other school types. However, this relationship does not appear for all types of conduct. The generally favorable results for Catholic schools are independent of a large number of family factors. However, in some models (e.g., cocaine use), the apparent influence of Catholic schools is negligible, and in a select few instances (e.g., alcohol use; disruption in 12th grade) the coefficients for Catholic schools are negative (predicting worse behavior), not positive.

In speculating possible explanations, it seems plausible that the negative coefficients reflect the influence of unmeasured social learning factors. Estimating student conduct may require inclusion of not only family relationships, communication, supervision and socioeconomic status, but also indicators of parent modeling and values

with respect to the behaviors investigated (perhaps including indicators of the parent's own conduct).[66]

This interpretation of the anomalies (the judgement that they might signal omitted social learning factors) may have implications for interpreting the results more generally. If controls for parent modeling are needed to estimate alcohol use and disruption, such controls may be equally needed for the estimation of *other* behaviors. Whether the inclusion of new controls would fundamentally alter the estimates of Catholic school influences is uncertain,[67] but the findings dictate caution.[68] Catholic school effects remain a possibility, perhaps a *strong likelihood*. And yet the findings do not produce unqualified support of Catholic school influences (due to the anomalies noted).[69] Policy initiatives leading to greater access to Catholic schools (such as vouchers) should not proceed under an expectation that such initiatives are bound to result in improved student behavior. Were there a more clearly delineated pattern of positive Catholic school influences (and were there a sense of the educational means by which the Catholic school advantage is generated), the case for school choice would be clearly strengthened. This study, however, did not find commanding data to confidently support that case.

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[66] For discussions of social learning theory see Vold, Bernard, and Snipes (1998), and Grusec (1992). For a discussion of social interaction theory, see Patterson, DeBaryshe, and Ramsey (1989).

[67] The prospect that the coefficients showing apparent *positive* influences might also be altered in the presence of new controls is uncertain, and would depend, among other things, on the degree to which families of students attending each school type differ on the parenting constructs of interest. The finding (chapter 5) that family differences are often not large suggests that changes in coefficients might also not be large, but direct investigation of this issue is needed.

[68] Some instances of parental modeling were included in the study; however, the inclusion of parental modeling for each type of conduct was not within the scope of the study.

[69] For summaries of previous studies of Catholic school influences on *achievement* (these show less ambiguous Catholic school influences), see Jencks (1985); and/or Haertel, James, and Levin (1987).

Other private schools do not generally appear advantaged in their relationships to behavior relative to public schools. Whereas for Catholic schools the trend is *largely favorable* (even if equivocal), the coefficients for non-Catholic private schools tend more often to be indistinguishable from zero or negative. It seems doubtful that the organizational trait explaining the seeming general advantage of Catholic schools (if this advantage is due to something in its organization) is a quality linked with aspects of the *private nature* of non-public schools.[70] Instead, it seems likely that the explanation for the apparent Catholic school advantage is some quality not prevalent in (non-Catholic) private schools.

The image that student behavior is vastly different across school types is not supported in the evidence (chapter 4). The findings of the present study mirror those of preceding research, showing greater rates of conduct problems in public schools. However, *large* differences are not the norm. For several behaviors, margins are negligible, and for a select few, problems appear *more severe* in non-public schools. Certainly, these findings do not negate the prospect that lessons might be drawn from the apparent overall relative success of Catholic schools (if differences are in fact due to the school). But if sound policymaking in education is reliant on an accurate perception of the incidence of conduct problems, policy should not be driven by the assertion that student behavior is vastly worse in public schools.[71]

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[70] Chubb and Moe 1992 offer a theory of school influences that emphasizes advantages thought to derive from the unique institutional environment of non-public schools.

[71] Prevailing perceptions (founded or otherwise) of the effectiveness of different school types have changed over time. Greeley (1998) notes that historically (prior to the appearance of major national studies) Catholic schools were subject to unfounded stereotypes of institutional "sleepiness" and academic

(continued...)

There are also limitations in making gross comparisons, which can be misleading if overgeneralized.[72] The question of the influence of the type of school attended is arguably quite a valid one, but problem behavior has been identified in schools of all types, and considerable variation in behavior exists that is not explained by the type of school attended. For this reason, policy alternatives that have the potential to reach any student exhibiting adjustment problems (regardless of the type of school attended) may also be worth considering.

Policies that strengthen the family warrant high profile in policy discourse. In the findings, several family processes, including *relationships*, *supervision*, *communication*, and *crisis family events*, are found to have relatively strong influences on student behavior. Moreover, it seems from this study (along with past research) that family influences on behavior are nearly indisputable. If policies can be identified that strengthen family life and parenting, it may be possible to improve student outcomes in ways not otherwise possible. Research on the influence of the family and family interventions may be useful in providing tenable policy options.[73]

The relationship of socioeconomic status (and its correlates) with behavior warrants further investigation. In the principal analyses of this study, the coefficients for

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[71](...continued)
inferiority. More recently, Jennings (1996) and Alexander (1997) have sought to rebut what they see as unsupported characterizations of public schools.

[72] It might be profitable in future research (if data became available), to divide the school types into smaller subtypes. Such an investigation could potentially find that the distinctions of importance (as to what types matter) are subtler than expected.

[73] Approaches that seem worth further contemplating include parenting classes (Halle et al. 2000), family support through home visitation (General Accounting Office 1990), and substance abuse treatment and prevention (Lillie-Blanton 1998).

certain indicators of economic disadvantage (*income* and *traditional socioeconomic status*) are negative, not positive.[74] This finding may be puzzling, but nonetheless seems useful. Shoemaker (1996) and Vold, Bernard, and Snipes (1998) point out that the influence of poverty on deviance tends to be weak and inconsistent. Moreover, DiPrete and Peng (1981) find that students from middle income families generally have lower rates of misbehavior than do students from low- and high-income families. In light of these findings, it should not be surprising that when representing socioeconomic status in several different ways, some attributes appear negative.[75]

However, it does not seem possible that economic hardship per se could benefit student adjustment. More plausible is the prospect that the negative relationships may signify omitted variables that co-occur with family economic conditions. Speculating possibilities, it seems plausible that greater economic means (in the hands of the student) might signify greater access to drugs and/or alcohol. Or it might signify a greater probability of automobile ownership, and with it, greater freedom to spend time with peers. It seems worth contemplating whether some material goods could be accompanied by unexpected side effects. For example, having ones' own room might lead to a greater chance of spending time in isolation from other family members. Finally, student self-identification as high-status might signify less propensity to relegate authority to

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[74] In the study income is operationalized as a continuous variable. An alternative approach is to divide income into cut points using indicators variables, and to control for the income *range* within which each family falls. When doing so in ancillary analyses, income still appropriates a significant negative sign. This negative relationship tends to arise in the top one or two income quintiles of families income.

[75] In the study, the negative coefficients for conventional socioeconomic status are reliant on the presence of the controls for other family factors (e.g., family relationships, communication, and supervision). When behavior is regressed on conventional socioeconomic status *alone*, SES appears favorable to student conduct. Separately, ancillary analyses indicate that SES is *not* a negative predictor of *achievement*, even in the presence of the other family factors.

teachers. Whether these hypotheses (or alternatives that others might propose) have validity can only be established through further investigation.[76]

The comparisons undertaken do not support the image that Catholic schools enforce discipline more strictly than do public schools. In contemplating possible explanations for this finding, it seems possible that a school's proclivity to enact stricter disciplinary policies might in part be driven *by* the degree to which school administrators regard student behavior to be a problem. The prospect that students may influence school organization is supported by Tropea (1987a, 1987b), which highlights instances in which changes in student enrollments (resulting from compulsory attendance) precipitate changes in school policies. Moreover, news reports give the sense that schools do react to public pressure to "clamp down" on student violence.[77]

The finding of chapter 9 that disciplinary policies were not consistently related to behavior also merits discussion. In considering possible explanations for this finding, it seems plausible that official disciplinary policies may lack explanatory power when taken in isolation from other factors, such as whether students are cognizant of how violations are penalized, whether punishments are perceived as genuinely objectionable, and whether students perceive a significant risk of being caught. It seems reasonable to expect that disciplinary policies might more likely influence behavior when these conditions are effectively met. But the degree to which they are met is uncertain.

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[76] Operationalizing poverty in ever-more specific ways, giving concreteness to our implicit theory or theories of poverty, might help explain with greater clarity how socioeconomic status and its correlates influence adolescent behavior. Conger et al. (1994) provides an example in which economic hardship is linked to the experiences, interactions, and relationships of family members.

[77] See "Shootings Propel States Into Action on Safety," Education Week, 5 May 1999; and "News in Brief: USA, Despite A Decline In Youth Violence" Christian Science Monitor, 13 April 2000.

At the same time, it seems reasonable to question whether strict disciplinary policies taken in isolation of other school characteristics, such as disciplinary fairness, can in fact change student conduct. Disciplinary fairness may merit investigation as a necessary complement to the enforcement of disciplinary policies. Fairness has long been recognized as an ingredient integral to effective school functioning (Purkey and Smith 1983; Bryk, Lee, and Smith 1990), and it seems sensible to expect that for policies to be accepted as legitimate, they must be perceived as fair.[78] Alternatively, the efficacy of official disciplinary policies may be reliant on the presence of some other unknown school characteristic.

A final possibility to be considered is whether the ingredient explaining Catholic school success may be a quality having little at all to do with disciplinary policies. Of particular interest may be the religious nature of sectarian schools.[79] But school religiosity seems multifaceted and not easily defined. Phillips (1992) suggests that faith in the context of Catholic schooling may be defined as consisting of six core dimensions: belief, religious knowledge, experience, religious practice, individual moral consequences, and social consequences. But there seems little reason to imagine that the ways of operationalizing school religiosity are limited to these,[80] suggesting that questions relating to the impact of religion on school discipline may not be easily or

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[78] It may be relevant that in research on parenting (e.g., Steinberg et al. 1992), discipline characterized as most effective is neither permissive nor authoritarian.

[79] Bryk, Lee, and Holland (1993) underscore the unique role of religion in Catholic schools.

[80] Still-further possibilities could be considered. School traits to be investigated might involve non-neutrality in discussion of moral issues, or a greater proclivity to articulate explicit normative rationales for school rules. Alternatively, religiosity might imply a greater proclivity to invoke precepts of forgiveness, duty, or personal transformation.

quickly resolved.

Initiatives that increase the match of instructional difficulty level to the ability level of students warrant high profile in policy discourse. In the findings of this study, class difficulty level is among school factors with the greatest relationship with behavior. The results have practical implications. One of the important reform movements of our time is the movement for higher and more demanding academic standards. The findings suggest that high standards ought be designed in a way that is sensitive to student capabilities. Although the present study focuses on student conduct, not achievement, research on effective teaching (Brophy and Good 1986) has long recognized the importance of appropriate ability-level pacing.

> To learn efficiently, students must be engaged in activities that are appropriate in difficulty level and otherwise suited to their current achievement levels and needs. It is important... to see that they make continuous progress all along the way... with high rates of success and minimal confusion or frustration (Brophy and Good 1986, 360).
>
> The most consistently replicated findings link achievement to the quantity and pacing of instruction (360).

In suggesting the potential frustration associated with ill-paced instruction, Brophy and Good's (1986) discussion is reminiscent of strain theory,[81] rendering intelligibility to the notion that instructional difficulty level may influence student behavior. It seems that tailoring instruction to the appropriate ability level may

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[81] Strain theory maintains that deviance can arise from frustration due to the inconsistencies between socially valued goals and lack of legitimate means to attain them. Strain has been conceived in various ways, including but not limited to, negative relationships, stressful life events, negative subjective experiences, and emotions including depression, fear, and anger (Vold, Bernard, and Snipes 1998; see also Shoemaker 1996).

propitiously serve multiple aims at once.

The task for educators and policymakers lies in identifying strategies that may help bring about the desired match between instruction and student ability. Tutoring and summer school may be worth considering as ways to bring student populations to a common level of preparedness. The match between instruction and student ability could also be enhanced by tailoring instructional tasks (for example, by increasing the requirements of students able to take on additional, and/or more challenging, tasks, perhaps for extra academic credit). Existing research may provide other strategies for appropriately tailoring instruction.

Suggestions for Future Research

The following recommendations for further study are suggested based on issues addressed in the study.

1. Studies of school type and behavior in the elementary school years.

2. Development of theory and evidence to advance knowledge of different school factors, including ones associated with the religious nature of Catholic schools.

3. Development of theory and evidence to address differing Catholic school influences for different types of behavior.

4. Further study of family influences. Examples include indicators of child behavior prior to kindergarten enrollment, parental internal religiosity, parental behavioral conservatism (beliefs and values), and parental conduct (e.g., alcohol use), perhaps including retrospective indicators of parental behavior in school.

Limitations

The research design allows for examination of an extensive number of students,

and a wide variety of dependent and independent variables. In a quantitative study of this sort, it is not possible to examine each student in great depth, and as a result, nuances are not captured as they might be in an intensive qualitative study.

The nature of some survey question options represents a further limitation, in that answers are subject to individual interpretation (e.g., the student question addressing coming to class with or without homework employed a "how often" format allowing for the responses *usually, often, seldom,* or *never*). While the researcher is aware of no reason to presume that measurement error for these questions might fundamentally alter the findings of the study, it would not seem appropriate to presume that no such bias is possible. Finally, the quality of the self-reported data is reliant on what respondents are able and willing to report. While NELS:88 documentation reports a high degree of consistency and accuracy, some degree of measurement error can reasonably be expected.

As noted in chapter 1, students are not randomly allocated to schools, but instead attend the school their parents select. As a result, families selecting different types of schools may be expected to differ in ways that matter to student conduct. Thus, there is an inherent threat that variation in student behavior due to factors underlying a student's selection of school may be erroneously attributed to the school itself. The student composition of schools may differ also due to school policies such as competitive selection of students upon entry. Although research (Bryk, Lee, and Holland 1993) suggests that such screening of students in Catholic schools is uncommon, it seems possible that at least some differences in student populations may be heightened by the use of these policies. Analyses can control for factors that are thought to be integral (and

can control for prior outcomes), but the controls ought not be seen as necessarily creating equivalence among the populations of students attending different school types.

Is it possible to predict in advance how more complete coverage of family factors might change the estimation of the Catholic school relationship with behavior? Since students attending Catholic schools display favorable backgrounds at rates somewhat greater than students attending public schools, improvement of the estimation of family qualities would seem likely to lead to a corresponding decrease in the estimated positive influences of Catholic schools.

Although NELS:88 undertook systematic efforts to solicit high response rates, not all targeted sample members participated in the survey. Moreover, there are exclusions based on inability to complete survey instruments. Although the sample is designed to be representative of students nationally, the study's findings are not generalizable to individuals that would be unable to participate in the study.

APPENDIX 1

DESCRIPTIONS OF DEPENDENT VARIABLES

This appendix describes the dependent variables of the study.

10th Grade

Less Serious Violations

• Being Tardy	How many times late in first half of this year
• Homework	How often go to class without homework done
• Books	How often go to class without books
• Pencil & paper	How often go to class without pencil/paper
• Attentive in class	How often student is attentive in class

More Serious Violations

• Disruptive in class	How often student is disruptive in class
• Cutting class	How many times did you cut/skip classes
• Fighting w/ student	Got into a physical fight at school
• Marijuana use	Last 12 months, # times used marijuana
• Alcohol use	Last 12 months, # of times respondent drank alcohol
• Cocaine use	Last 12 months, # of times taken cocaine

12th Grade

Less Serious Violations

• Being Tardy	How many times late in first school term
• Brings Homework	How often go to class without homework done
• Brings Books	How often go to class without books
• Brings Pencil/Paper	How often go to class without pencil/paper
• Attentive in class	How often student is attentive in class

More Serious Violations

• Disruptive in class	How often student is disruptive in class
• Cutting class	How many times did you cut/skip classes
• Fighting w/ student	Got into a physical fight at school
• Alcohol use	At school, no. of times under influence of alcohol
• Marijuana use	At school, no. of times under influence of marijuana
• Cocaine use	At school, no. of times under influence of cocaine

APPENDIX 2

DESCRIPTIONS OF INDEPENDENT VARIABLES

The independent variables and independent variable indices employed in the study were enumerated in chapter 3. This appendix provides descriptions of independent variables and the composition of the indices. Indices are defined as the value of behavior predicted by the components of the index (using ordinary regression).

Individual Variables

• Male	Composite sex
• Religious person	Respondent thinks he is a religious person
• Nonwhite	Composite race
• Learning and/or emotional problems	
	Learning problem (child has specific learning problem)
	Emotional problem (child has emotional problem)
• Strain (gap between earnings goals & expectations; 10th and 12th grade)[82]	
	Important having lots of money
	Chances respondent will have a job that pays well
• Handicap	Handicap status (teacher reported)

Family Variables

• Urbanicity	Urban, suburban, or rural
• Geographic region	Region of the country (Central, South, East, West)
• Parent Catholic	Religious background (Catholic or non-catholic)

[82] Several variables measured in the early high school grades were updated in models of 12th grade behavior using data available in the student's senior year.

- Parents get along
  - Parents have good marriage
  - Change in family structure[83]
- Socioeconomic status
  - Socioeconomic status composite
  - Place to study (student's family has specific place for study)
  - Student has own bedroom
  - Number of dependents
- Relative SES — Family SES minus within-school mean
- Other SES conditions
  - Went on welfare (in last 2 years)
  - Stayed on welfare (in last 2 years)
  - Mother lost job (in last 2 years)
  - Father lost job (in last 2 years)
  - Mother died (in last 2 years; 10th grade measure)
  - Father died (in last 2 years; 10th grade measure)
  - Parent died (one parent died; 12th grade measure)
  - Parents' job status[84]
  - Family member used drugs (12th grade measure)
- Income — Family income
- Family relationships
  - Family conflict (number of family members student doesn't get along with)
  - Parents understand student
  - Parents treat fairly (student's parents treat student fairly)
  - Student dislikes parent (student does not like his parents very much)
  - Parents trust student (to do what they expect; measured both in 10th and 12th grade)
  - Getting away important (important getting away from parents)
  - Student ran away (in last two years; measured both in 10th and 12th grade)
  - Parent knows friends (parent knows 1st name of their student's friends; measured both in 10th and 12th grade)

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[83] Either divorce, separation, death of parent's spouse, marriage or re-marriage, or parent began living with someone.

[84] An index characterizing whether the parent was working in past four weeks, and whether the spouse was working in the past week.

- Parent knows parents — Extent parent knows parents of child's friends
- Family communication
  - Family activities together (how often student does things with mother/father)
  - Family discusses things (programs at school, school activities, things studied in class) with student (measured in both 10th and 12th grade)
  - Student knows why to obey parents
- Family supervision/home rules
  - Time home alone (time after school with no adult present)
  - Home alone one week (12th grade measure)
  - Family rule about doing homework (10th and 12th grade)
  - Family rule how many hours student may watch tv
  - Family rule about tv programs student may watch
  - Time student watches tv on weekdays
  - Student can stay out late on school nights
  - Parent monitors activities (tries to know where student goes at night; tries to know what student does with free time)

Peer Variables

- Percent Caucasian — Percent white (non Hispanic) 10th graders
- Percent single parent — Percent students in single parent homes
- Percent free lunch — Percent students receive free or reduced-price lunch

- School religiosity — School-level aggregate of *religious person*
- School mean family influence
  - School-level index based on 8 family-factors (measured in 10th and 12th grade)
- Peer status
  - Student seen as popular (by students in class)
  - Student seen as good student
  - Student seen as athletic
  - Student seen as important
- Time spent with peers
  - Time spent with friends at local hangout
  - Drive around (how often drive or ride around)
- Peer acceptance
  - Student has friends of own sex
  - Student not very popular with opposite sex
  - More difficult to make friends in high school
  - Felt more alone in high school

Models of Change

- Student expectations — How far does student think he/she will get in school
- Index of prior behavior — Predicted behavior based on 8th grade behavior in models of sophomore behavior; and based on 8th and 10th grade in models of senior your behavior
- Index of prior achievement — Predicted behavior based on student composite test score in 8th grade
- School-aggregate index of prior behavior — School-level predicted behavior based on prior student behavior
- School-aggregate index of prior achievement — School-level predicted behavior based on prior student achievement

APPENDIX 3

DESCRIPTIONS OF UNDERLYING SCHOOL FACTORS

Chapters 8 and 9 addressed issues relating to school factors. Ten general dimensions of school organization, and six sets of behavior-specific disciplinary policies were examined. This appendix provides descriptions of the school variables investigated.

Disciplinary Policies Regarding Particular Behaviors

• Teacher records all h.w.	Teacher keeps records of who turns in assignments
• Teacher returns all h.w.	Returns assignments with grades or corrections
• Teacher discusses all h.w.	Discuss the completed assignment in class
• Detention for skipping	Detention or minor disciplinary action if caught skipping classes
• In-suspension for skipping	In-school suspension if caught skipping
• Out-suspension for skipping	Out-of-school suspension if caught skipping
• Transfer for skipping	Transfer student if caught skipping
• Expulsion for skipping	Expulsion if caught skipping
• Detention for disruption	Detention for suspension classroom disturbance
• In-suspension for disruption	In-school suspension classroom disturbance
• Out-susp. for disruption	Out-school suspension for classroom disturbance
• Transfer for disruption	Transfer for suspension classroom disturbance
• Expulsion for disruption	Expulsion for suspension classroom disturbance
• Detention for injury	Detention if injury to another student
• In-suspension for injury	In-school suspension if injury
• Out-susp for injury	Out-of-school suspensions if injury
• Transfer for injury	Transferred if injury another student
• Expulsion for injury	Expulsion if injury to another student
• In-suspension for alcohol	In-school suspensions for using alcohol at school

• Out-suspension for alcohol	Out-school suspensions for using alcohol at school
• Transfer for alcohol	Transfer for using alcohol at school
• Expulsion for alcohol	Expulsion for using alcohol at school
• In-suspension for drugs	In-school suspensions for drug use at school
• Out-suspension for drugs	Out-school suspensions for drug use at school
• Transfer for drugs	Transfer for suspension for drug use at school
• Expulsion for drugs	Expulsion for suspension for drug use at school

Other School Organization Factors

• School size	Entire school enrollment
• Class size	How many students enrolled in class
• Teacher major in education	Bachelor's degree major in education
• Teacher certified	Teacher is certified
• Class achievement level	Achievement level of class (10^{th} and 12^{th})
• Difficulty level of class	Difficulty of class for student (10^{th} and 12^{th})
• Math is useful	Math will be useful in my future
• English is useful	English will be useful in my future
• Fair discipline	Discipline is fair at school (10^{th} and 12^{th})
• Parents notified	Parents notified when student is sent to principal's office for disruptive behavior

APPENDIX 4

LOGISTIC MODELS OF STUDENT BEHAVIOR

This appendix examines the relationship between school type and student behavior examining each indicator of student conduct separately using logistic analyses.[85] All models employ the same individual, family and peer controls used in the preceding analyses of this study. The findings are summarized in tables A1 through A4. The first two display the results for Catholic schools, and the second two the results for other private schools.

These findings generally affirm the results of prior chapters. For several behaviors, odds ratios strongly favor Catholic schools. But there are conspicuous exceptions that preclude drawing unequivocal conclusions.

In 10th grade, behaviors showing the greatest school effects are *cutting*, *fighting*, *book* and *homework*. Behaviors with the greatest Catholic school advantage in 12th grade, are *cutting*, and *books* (a classroom readiness indicator). In both grades, the

[85] In logistic models, behavior is defined as either acquiescent (1) or not (0). Such models allow one to accommodate the limited (ordered, not continuous) nature of each measures of behavior, and examine each type of conduct in itself, rather than in aggregation. The results display relationships in the form of odds ratios, signifying the change in probability (of a student falling in the well-behaved group) associated with a unit change in the independent variable. The relationship is measured by the distance (in either direction) from 1.0, with an odds ratio of less than 1.0 signifying a negative relation, and vice versa. Thus, a ratio of 1.25 indicates a 25% greater likelihood of appropriate behavior.

behaviors *cutting*, *books, homework,* and *late* are consistently positive. Notably, however, for some behaviors Catholic school coefficients are negligible and for other acts, Catholic schools coefficients are negative. In 10th grade, the Catholic school influences for *alcohol*, *pencil and paper* (a readiness indicator), *paying attention*, *cocaine,* and *marijuana* are questionable or indistinguishable from zero. Catholic school coefficients in 12th grade for *alcohol* and *disruptive* appear to indicate a negative influence on student conduct; and the influences for *pencil and paper, fighting*, *marijuana*, and *cocaine* are questionable or negligible.

The findings for other private schools, displayed in tables A3 and A4 , show an exceedingly mixed pattern, with an overall picture of relative comparability with public schools. In 10th grade, no behavior shows a clear advantage for other private schools. Other behaviors, such as *cutting*, *attentive* and *alcohol,* are positive but of questionable magnitude. The behaviors where the net differences between public and other private schools are greatest are ones where it is public schools that appear advantaged (such as *late*, *fighting*, and *marijuana)*.

Influences are slightly less mixed in 12th grade, with more behaviors favoring other private schools than not. In 12th grade, three behaviors show clear advantages for other private schools, with *fighting* (class readiness) and *attentive* showing the greatest odds ratios. The behaviors *late* and *cocaine*, however, reveal advantages for public schools.

Conclusion

The pattern of advantage for Catholic and other private schools stops short of being universal, suggesting doubts about some prevailing images of non-public schools.

For many behaviors, differences across school types are zero. For other private schools, effects overall are mixed, suggesting influences that do not differ dramatically from public schools. For Catholic schools, there are instances (*alcohol* and *disruption*) where school effects appear negative, and there are a number of behaviors for which school influences are negligible. These findings stand in contrast to an image of Catholic schools as uniformly favorable relative to public schools.

Table A1. Logistic Models of 10th Grade Behavior (defined positively), Catholic School Influences

	Dependent Variable	Catholic School Coefficient		
	Definition (Y= 1)	Coef.	Odds Ratio	P>| z |
Come w/out pencil/paper	Seldom / Never	.11	1.11	.65
Come w/out book	Seldom / Never	.59	1.81	.06
Come w/out homework	Often / Seldom / Never	.39	1.49	.03
Attentive	Most/all of time	-.02	0.97	.88
Late	Less than 3 times	.24	1.27	.00
Disruptive	Never	.19	1.21	.10
Cutting	Never	.87	2.39	.00
Fighting	Less than 3 times	.40	1.49	.17
Alcohol	0 occasions	.02	1.02	.79
Marijuana	0 occasions	.17	1.18	.17
Cocaine	0 occasions	-.24	0.78	.46

Table A2. Logistic Models of 12th Grade Behavior (defined positively), Catholic School Influences

	Dependent Variable	Catholic School Coefficient		
	Definition (Y= 1)	Coef.	Odds Ratio	P>| z |
Come w/out pencil/paper	Often / Seldom / Never	.20	1.23	.32
Come w/out book	Often / Seldom / Never	.54	1.73	.02
Come w/out homework	Often / Seldom / Never	.36	1.43	.06
Attentive	Some / Most/ All of time	.34	1.41	.20
Late	Less than 3 times	.27	1.31	.00
Disruptive	Never	-.16	0.84	.14
Cutting	Never	.88	2.42	.00
Fighting	Never	.12	1.13	.38
Alcohol	0 occasions	-.26	0.77	.03
Marijuana	0 occasions	-.16	0.85	.33
Cocaine	0 occasions	-.02	0.97	.96

Table A3. Logistic Models of 10th Grade Behavior (defined positively), Other Private School Influences

	Dependent Variable	Other Private School Coefficient		
	Definition (Y= 1)	Coef.	Odds Ratio	P>| z |
Come w/out pencil/paper	Seldom / Never	-.19	0.81	.39
Come w/out book	Seldom / Never	.12	1.12	.67
Come w/out homework	Often / Seldom / Never	.02	1.02	.88
Attentive	Most/all of time	.13	1.14	.52
Late	Less than 3 times	-.28	0.75	.00
Disruptive	Never	-.01	0.98	.90
Cutting	Never	.10	1.11	.20
Fighting	Less than 3 times	-.60	0.54	.01
Alcohol	0 occasions	.08	1.09	.28
Marijuana	0 occasions	-.28	0.74	.01
Cocaine	0 occasions	-.23	0.78	.51

Table A4. Logistic Models of 12th Grade Behavior (defined positively), Other Private School Influences

	Dependent Variable	Other Private School Coefficient		
	Definition (Y= 1)	Coef.	Odds Ratio	P>| z |
Come w/out pencil/paper	Often / Seldom / Never	.18	1.20	.38
Come w/out book	Often / Seldom / Never	.47	1.61	.04
Come w/out homework	Often / Seldom / Never	.16	1.17	.34
Attentive	Some / Most/All of time	.80	2.23	.00
Late	Less than 3 times	-.28	0.74	.00
Disruptive	Never	-.06	0.93	.55
Cutting	Never	.27	1.31	.00
Fighting	Never	.17	1.18	.22
Alcohol	0 occasions	.02	1.02	.84
Marijuana	0 occasions	-.11	0.89	.50
Cocaine	0 occasions	-.82	0.43	.04

APPENDIX 5

INEQUALITY AND SCHOOL VARIATION IN GENDER AND PEER INFLUENCES

In models employed to this point, school influences are defined as main effects, that is, *direct* influences on students. Research, however, has noted that Catholic schools can have *indirect* influences on academic achievement through interactions with other predictors.[86] The presence of interactions is pertinent to equality of educational opportunity. A high influence of a given predictor (e.g., gender) implies greater variation, and inequality, in outcomes. Conversely, a muted influence signifies less variation, and greater equality. Furthermore, if a predictor has a greater influence *in one school type than it has in others*, then variation of outcomes will be increased in that school type. This chapter investigates this issue by assessing differences in the influence of *gender*, and *peer effects* in public, Catholic, and other private schools. To do so, dummy variables are employed to allow the influence of these predictors to take a unique value for each school type.

In table A5, the new coefficients, disaggregated for each school type, are reported

[86] In previous analyses of student achievement, socioeconomic status displayed a smaller apparent influence in Catholic schools than it did in public schools (Greeley 1982).

along with the main effects reported in chapter 7. The results show that the determinants vary in public and Catholic schools, but in mixed and contradictory ways. Differences in gender do appear, but absent an overall systematic pattern. In neither public nor Catholic schools is the influence of gender consistently greater.

Differences are clearer for peer effects, but the pattern found for the two measures are opposite. The influence of *spending time with peers* is greater in Catholic schools than in public schools. The largest differences are found in the models of more serious behavior. The influence of *peer status,* however, is larger for students in public schools. In the model of 10th grade more serious behavior, where this difference is most clear, the coefficient for public school students is β=.16 whereas that for Catholic schools is β= .09. Overall, the results are mixed, depending on the given variable, with no one school type leading to categorically greater or reduced variation. In models incorporating the interactions, Catholic school main effects are reduced or unchanged in models of less serious behavior, and somewhat increased in models of more serious behavior.

Among the three school types, other private schools show the least variation arising from gender and peer effects. In other private schools, the coefficients for gender and *peer status*, are consistently smaller. The variable *time with peers* is somewhat less influential in other private schools, but the overall pattern is mixed and unclear. In models that include the interactions, the coefficients for other private schools are smaller than the coefficients in analyses absent the interactions. For less serious behavior, the influence of other private schools on conduct is clearly negative compared with public schools.

Table A5. Effects of Gender and Peer Influences as Main Effects or Interacted Across School Type

	Grade 10 Less Serious	Grade 10 More Serious	Grade 12 Less Serious	Grade 12 More Serious
Male				
Overall	-.19	-.14	-.27	-.28
Catholic	-.11	-.19	-.29	-.35
Other Private	-.03	-.17	-.08	-.23
Public	-.21	-.14	-.28	-.26
Time with Peers				
Overall	-.14	-.21	-.07	-.12
Catholic	-.18	-.28	-.08	-.17
Other Private	-.15	-.16	-.05	-.14
Public	-.13	-.21	-.07	-.12
Peer Status				
Overall	.16	.16	.11	.09
Catholic	.18	.09	.04	.03
Other Private	.11	.12	.09	.08
Public	.16	.16	.12	.09
Private School				
Overall	.00	-.08	.00	.03
With Interactions	-.12	-.11	-.07	.00
Catholic School				
Overall	.08	.09	.09	.10
With Interactions	.04	.13	.10	.16

APPENDIX 6

TREATMENT EFFECTS MODELS

This appendix employs treatment effects models to explore the relationship between school type and student behavior. Treatment effects models consider the effect of the endogenous binary treatment, attending a Catholic school, on behavior, conditional on predictors of behavior *and* determinants of selection.[87] The identifiers of school selection are income, urban status, national geographic region, past handicapped program recipient, and parent's religious background (denomination).[88] The independent variables employed are the same individual, family and peer controls used in the preceding models of this study.

Table A6 displays the coefficients indicating the relationship between attending a Catholic school and student conduct. In all four models, the results give the appearance that attending a Catholic school leads to considerably *worse* student behavior. The findings of the analyses diverge radically (by upwards of ten orders of magnitude) from the range of influences in previous research on academic achievement (table 7). In prior research (the authors are noted in the table), average standardized coefficients range from

[87] Estimator methods and formulas are available in Cong and Drukker (2000).

[88] See Akerhielm (1993), Marquis (1996), Noell (1982) and Sander (1997).

β= .02 to β= .08; but in one treatment effects model, the coefficient is β= -1.05, a magnitude that does not seem theoretically possible. Moreover, school effects *by far* surpass the effect size of other major family factors, lending further ground for doubt. No other judgement but that the findings are anomalies seems tenable.

In contemplating possible explanations, one question that could be raised is whether parent denomination is a suitable identifier of school selection. There is considerable precedent for its use, and there is a substantial body of previous delinquency research indicating that the predictive role of religiosity is dubious (e.g., Elifson, Peterson, and Hadaway 1983; Benda 1997). It is possible, however, that aspects of religiosity are predictors of deviance, suggesting doubt about its propriety as an identifier of selection. Other research may be able to identify explanations for the findings beyond what is possible in the present study.

Table A6. Estimates of Catholic School Influences (in Standard Deviations) in Exploratory Treatment Effects Models

	Coefficients			
	Two-step		MLE	
	Coef.	P>|z|	Coef.	P>|z|
10th Less Serious	-0.07	.35	-0.72	.00
10th More Serious	-0.15	.15	-0.97	.00
12th Less Serious	-0.07	.43	-0.15	.21
12th More Serious	-0.26	.00	-1.05	.00

Table A7. Catholic School Effect Sizes (standardized two-year gain) in Previous Studies and in Present Treatment Effects Models

Present Models (Grade 12 More Serious Behavior)		Previous Studies	
Treatment Effects MLE	OLS	Jencks[1]	Marsh[2]
-1.05	.04	0.06 - 0.08	.02 - .04

[1] Jencks (1985) addresses academic achievement studies by authors including James Coleman (with others); Douglas Willms; and Alexander and Pallas (see 134).

[2] Marsh (1991). The coefficient for student conduct is .03. The coefficients for academic achievement range from .02 to .04.

APPENDIX 6

MEAN AND STANDARD DEVIATION OF VARIABLES IN PRINCIPAL REGRESSION MODELS

Table A8. Mean and Standard Deviation of Variables in Principal Regression Models

	Mean	Std. Dev.	Min	Max
Dependent Variables				
Less serious behavior 10th	0.00	1.00	-3.79	1.76
More serious behavior 10th	0.00	1.00	-6.12	1.26
Less serious behavior 12th	0.00	1.00	-3.70	1.64
More serious behavior 12th	0.00	1.00	-7.99	0.82
Independent Variables				
Male	0.50	0.50	0.00	1.00
Very religious person	0.10	0.31	0.00	1.00
Somewhat religious	0.64	0.48	0.00	1.00
Nonwhite	0.25	0.44	0.00	1.00
Learn/emotional problem	0.00	1.00	-0.26	6.33
Strain 10th	0.00	1.00	-2.08	1.75
Strain 12th	0.00	1.00	-2.30	2.29
Handicap (tchr. report)	0.06	0.23	0.00	1.00
Urban	0.28	0.45	0.00	1.00
Suburban	0.42	0.49	0.00	1.00
Central	0.25	0.43	0.00	1.00

Table A8–*Continued*

Variable	Mean	Std. Dev.	Min	Max
South	0.35	0.48	0.00	1.00
West	0.20	0.40	0.00	1.00
Catholic	0.39	0.49	0.00	1.00
Parents get along 10th	0.00	1.00	-3.09	0.71
Parents get along 12th	0.00	1.00	-2.35	0.69
Socioeconomic status	0.00	1.00	-3.91	3.34
Relative SES 10th	0.00	1.00	-4.46	3.94
Relative SES 12th	0.00	1.00	-4.17	4.02
Other SES conditions 10th	0.00	1.00	-11.15	0.74
Other SES conditions 12th	0.00	1.00	-6.03	2.00
Income	0.00	1.00	-3.46	2.07
Family relationships 10th	0.00	1.00	-4.25	1.07
Family relationships 12th	0.00	1.00	-5.21	0.96
Communication 10th	0.00	1.00	-3.35	1.57
Communication 12th	0.00	1.00	-3.07	2.50
Supervision/rules 10th	0.00	1.00	-3.89	3.39
Supervision/rules 12th	0.00	1.00	-4.02	2.72
Parent knows parents 10th	0.00	1.00	-1.70	1.59
Parent knows parents 12th	0.00	1.00	-1.53	1.47
Percent Caucasian	0.00	1.00	-1.87	0.79
Percent single parent	0.00	1.00	-1.01	7.19

Table A8–*Continued*

Variable	Mean	Std. Dev.	Min	Max
Percent free lunch	0.00	1.00	-2.02	2.47
School mean religiosity	0.00	1.00	-4.12	5.66
School mean family influences 10^{th}	0.00	1.00	-4.82	4.94
School mean family influences 12^{th}	0.00	1.00	-7.05	4.57
Peer status 10^{th}	0.00	1.00	-2.39	1.48
Peer status 12^{th}	0.00	1.00	-2.56	1.69
Time spent with peers 10^{th}	0.00	1.00	-1.30	1.95
Time spent with peers 12^{th}	0.00	1.00	-1.19	1.96
Peer acceptance	0.00	1.00	-5.26	1.59
Academic attainment expectations	0.00	1.00	-3.30	0.65
School mean prior achievement	0.00	1.00	-2.76	3.27
School mean prior behavior 8^{th}	0.00	1.00	-5.95	4.02
School mean prior behavior 10^{th}	0.00	1.00	-8.54	3.06
Prior academic achievement 8^{th}	0.00	1.00	-1.94	2.61
Prior student behavior 8^{th} less ser.	0.00	1.00	-3.81	1.53
Prior student behavior 10^{th} less ser.	0.00	1.00	-3.91	1.94
Prior student behavior 10^{th} more ser.	0.00	1.00	-5.11	1.32
Other Private School 10^{th}	0.06	0.24	0.00	1.00
Other Private School 12^{th}	0.08	0.27	0.00	1.00
Catholic School 10^{th}	0.04	0.19	0.00	1.00
Catholic School 12^{th}	0.05	0.21	0.00	1.00

APPENDIX 7

MEAN AND STANDARD DEVIATION OF UNDERLYING SCHOOL VARIABLES

Table A9. Mean and Standard Deviation of Underlying School Variables

	Mean	Std. Dev.	Min	Max
School size	0.00	1.00	-1.60	1.76
Class size	0.00	1.00	-2.03	5.69
Teacher major in education	0.12	0.33	0.00	1.00
Teacher certified	0.95	0.22	0.00	1.00
Class achievement level low(10^{th})	0.15	0.36	0.00	1.00
Class achievement level high (10^{th})	0.22	0.41	0.00	1.00
Class achievement level varies(10^{th})	0.11	0.31	0.00	1.00
Class achievement level low (12^{th})	0.15	0.36	0.00	1.00
Class achievement level high (12^{th})	0.33	0.47	0.00	1.00
Class achievement level varies (12^{th})	0.10	0.29	0.00	1.00
Difficulty level of class (10^{th})				
Too difficult	0.08	0.27	0.00	1.00
Not difficult enough	0.07	0.26	0.00	1.00
Difficulty level of class (12^{th})				
Too difficult	0.09	0.29	0.00	1.00
Not difficult enough	0.06	0.24	0.00	1.00
Math is useful	0.00	1.00	-3.02	0.90
English is useful	0.00	1.00	-2.82	1.11

Table A9–*Continued*

	Mean	Std. Dev.	Min	Max
Fair discipline 10th	0.00	1.00	-2.54	1.94
Fair discipline 12th	0.00	1.00	-2.23	1.77
Teacher records all h.w.	0.78	0.41	0.00	1.00
Teacher returns all h.w.	0.58	0.49	0.00	1.00
Teacher discusses all h.w.	0.60	0.49	0.00	1.00
Parents notified usually	0.50	0.50	0.00	1.00
Parents notified always	0.25	0.43	0.00	1.00
Detention for skipping	0.65	0.48	0.00	1.00
In-susp. for skipping	0.59	0.49	0.00	1.00
Out-susp. for skipping	0.14	0.34	0.00	1.00
Transfer for skipping	0.01	0.09	0.00	1.00
Expulsion for skipping	0.01	0.12	0.00	1.00
Detention for disruption	0.75	0.43	0.00	1.00
In-susp. for disruption	0.37	0.48	0.00	1.00
Out-susp. for disruption	0.21	0.41	0.00	1.00
Transfer for disruption	0.01	0.11	0.00	1.00
Expulsion for disruption	0.03	0.17	0.00	1.00
Detention for injury	0.03	0.16	0.00	1.00
In-suspension for injury	0.15	0.36	0.00	1.00
Out-susp for injury	0.85	0.36	0.00	1.00
Transfer for injury	0.06	0.23	0.00	1.00
Expulsion for injury	0.39	0.49	0.00	1.00
In-suspension for alcohol	0.10	0.30	0.00	1.00
Out-susp. for alcohol	0.80	0.40	0.00	1.00
Transfer for alcohol	0.06	0.24	0.00	1.00
Expulsion for alcohol	0.23	0.42	0.00	1.00
In-suspension for drugs	0.07	0.26	0.00	1.00
Out-susp. for drugs	0.74	0.44	0.00	1.00
Transfer for drugs	0.07	0.25	0.00	1.00
Expulsion for drugs	0.31	0.46	0.00	1.00

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